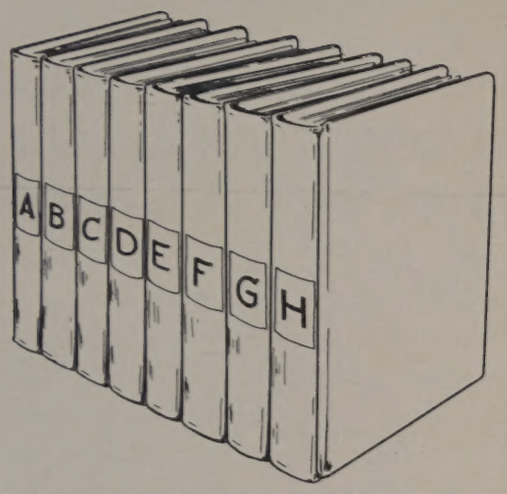
Ask your Jobber or write for Free Copies of our latest cumulative Index and "How to File" Folders

TRADE NAME	MODEL	FOLDER NO.
Admiral (Supplement to Model RC200)	Record Changer Models RC160, RC160A, RC161, RC161A, RC200	4711-37
Ampliphone	10	4711-1
Ampliphone	20	4711-12
Andrea	T-16	4711-2
Andrea	T-U16	4711-3
Automatic	720	4711-4
20th Century	200	4711-5
20th Century	300	4711-6
Concord	6R3ARC, 7R3APW	4711-7
Coronado	43-8178	4711-8
Crosley	56TD	4711-9
Delco	R-1251, R-1252	4711-10
Emerson	528 (Ch. 120038)	4711-13
Emerson	536 (Ch. 120036)	4711-14
Emerson	546 (Ch. 120049)	4711-15
Fada	P82	4711-16
Globe	500	4711-18
Globe	517	4711-17
Grantline	504-7	4711-19

TRADE NAME	MODEL	FOLDER NO.
Masco	MA-35, MA-35RC	4711-20
Masco	MAP-120	4711-21
Meck	5D7/WL18	4711-22
Midwest	S-12, SG-12, ST-12 (Ch. SGT-12)	4711-23
Midwest	S-16, SG-16, ST-16 (Ch. SGT-16)	4711-24
Motorola (Supplement)	405M	4711-25
Musitron	105	4711-26
Musitron	202	4711-27
Packard-Bell	261	4711-28
Setchell Carlson	427	4711-29
Sky Rover	N5-RD295 (Ch. 5A7)	4711-30
Steelman	350, 351	4711-31
Studebaker (Philco)	S-4624, S-4625 "Liberator"	4711-32
Telesonic (Medco)	1636	4711-33
Telesonic (Medco)	1643	4711-34
Temple	E-301	4711-35
VM	Record Changer Model 800	4711-38
Westinghouse (Supplement)	H-104A, H-105A, H-107A, H-108A, H-154	4711-36
Wilmak	W-446 "DENchum"	4711-11

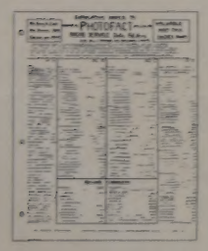
METHOD 3 — INDIVIDUAL 3-RING BINDERS

PHOTOFACT Folders are filed in alphabetical order, first by manufacturer's name—second by model number.



HOW TO FILE AND USE

Remove the Folders from the mailing envelope. File each new Folder alphabetically in the appropriate 3-ring binder —first under the manufacturer's name and then by model number order. To find the Folder you want, look for the binder in which the manufacturer's Folders are located. Then find the required Folder in its model number order.



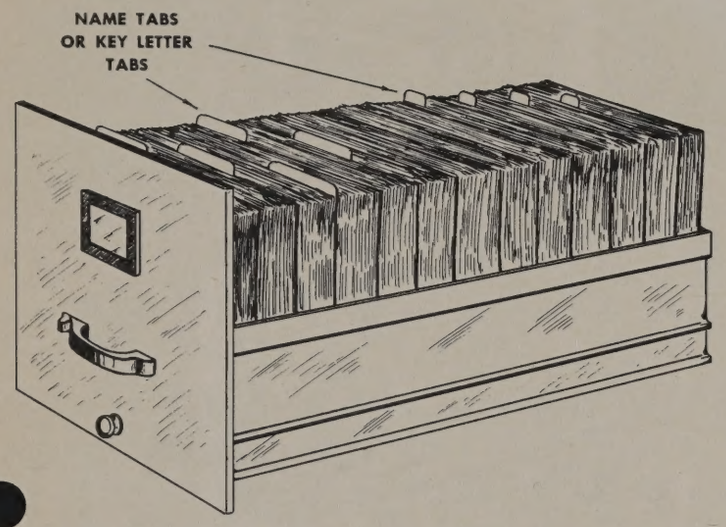
USE THE CUMULATIVE INDEX FOR CROSS-REFERENCE

Because a single receiver chassis may be used by a manufacturer in several models, it is necessary to cross-reference many Folders. If the Folder you want apparently is not in your file, always refer to the PHOTOFACT Cumulative Index. It will show the proper Folder which describes the basic chassis.

COMMENTS: The necessary number of 3-ring notebook binders required for this method can probably be obtained more economically than expansion type binders or file drawers. Advantages of this method: all Folders of any one manufacturer are filed together. Binders may be used by more than one man at a time. Folders can be easily removed from the binder. Drawbacks of this system are: considerable time and effort required to insert each new Set of Folders; most of the binders will have to be opened. Gummed reinforcements should be placed on each Folder to prevent tearing. There is also the possibility of damaging or misplacing individual Folders removed from their binders.

METHOD 2 — ALPHABETICAL IN FILE DRAWERS

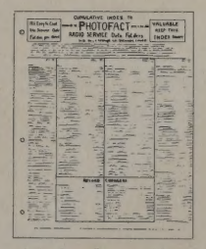
PHOTOFACT Folders are filed alphabetically in file drawers—arranged first by manufacturer's name, and second by numerical model number.



HOW TO FILE AND USE

Remove the Folders from the mailing envelope. Simply file each Folder in the proper manufacturer's file section and arrange in the correct model number order. To find the Folder you want, look for the manufacturer's name (arranged alphabetically) and then locate the required Folder in its model number order.

USE THE CUMULATIVE INDEX FOR CROSS-REFERENCE



Because a single receiver chassis may be used by a manufacturer in several models, it is necessary to cross-index many Folders. If the Folder you want is apparently not in your file, always refer to the PHOTOFACT Cumulative Index. It will show the Folder which describes the basic chassis.

COMMENTS: This method of filing has the advantage of combining all Folders of one manufacturer together. Alphabetical arrangement by manufacturer and easy accessibility makes it simple and quick to locate Folders desired. With this system, it is not necessary to know year of receiver manufacture. Also, if receiver to be repaired has no identification, it can be recognized from the photographs in the manufacturer's Folder file. *Over a long period of time, this method will cost less.* Drawbacks of this system: Relative high initial cost of proper file drawers; time and effort required to insert each new Set of Folders, in alphabetical order; possibility of damaging or misplacing individual Folders removed from the file.

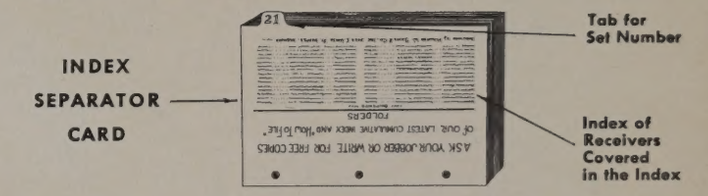
In the long run, this method may prove the most economical and effective.

METHOD 1 — FILING BY SET NUMBER

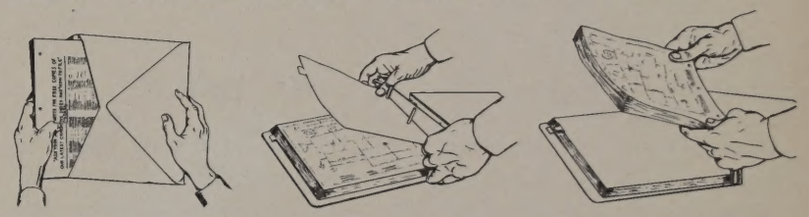
(The 30-Second Method)

PHOTOFACT Folders are filed by Set Number, and are arranged in numerical order by Folder number within each Set

Our research shows that this method of filing is preferred by a majority of Service Engineers for its speed and convenience. Therefore, beginning with Set No. 21, an Index Separator will be included with each PHOTOFACT Set. The Index Separator lists each receiver covered in the Set and has an index tab showing the Set number.



EASY TO FILE—HERE'S ALL YOU HAVE TO DO:



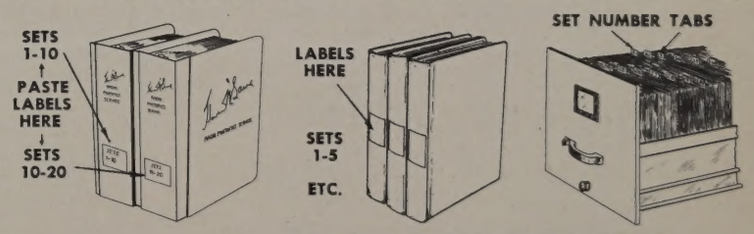
1. Remove the Index Separator and Folders from the mailing envelope. Folders are already arranged in proper filing order.

2. Open Binder and place the Index Separator card behind the preceding Set of Folders.

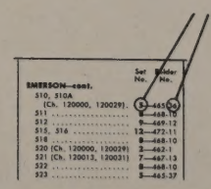
3. Place entire Set of Folders as arranged in the envelope, in the Binder, following the Index Separator Card. Your filing is then done.

TAKES ONLY 30 SECONDS TO FILE!

Files in the same easy way in Volume Binders, Ring Binders or File Drawers.



HOW TO USE THIS METHOD



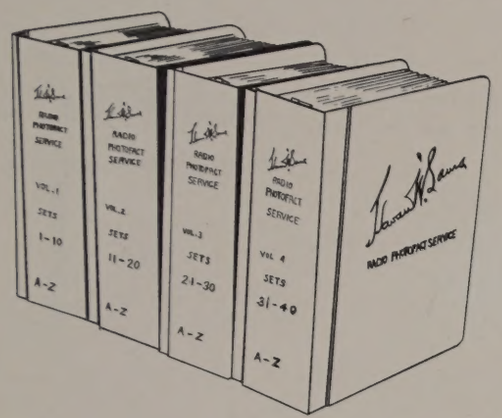
To locate the Folder you want, simply consult your PHOTOFACT Cumulative Index. Look for the name and model number of the receiver to locate the Set Number in which the Folder appears. Then look in your file for the proper Set Number in which you will find the required Folder.

KEEP YOUR CUMULATIVE INDEX HANDY!

COMMENTS: This filing method is highly recommended for its speed and convenience. A new set of Folders can be inserted in the file in approximately 30 seconds time. If you are now using some other type of filing system not entirely to your satisfaction, you may find that this quick method will save you time and trouble.

METHOD 4 — ALPHABETICAL FILE BY VOLUME

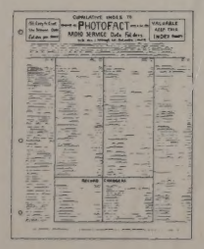
PHOTOFACT Folders are arranged in Volume Binders in alphabetical order. Each binder contains 10 sets of Folders. Each volume is individually numbered.



HOW TO FILE AND USE

Remove the Folders from the mailing envelope. You file each new Folder in the binder alphabetically under manufacturer's name and by model number order. Binders should be marked to show their "Set-Number" content. To find the Folder you want, refer to the PHOTOFACT Cumulative Index. This reference will give you the Set Number so that the proper Volume required can be determined. For example, if the Folder appears in Set No. 15, the Volume you will want is Volume 2. The Folder will be found in this Volume arranged alphabetically by manufacturer's name and by model number order.

USE THE CUMULATIVE INDEX



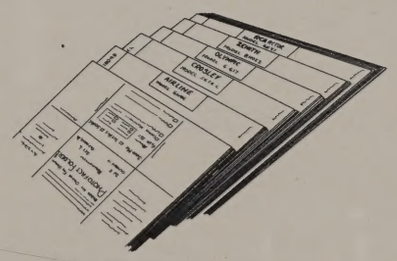
This method of filing requires the use of the PHOTOFACT Cumulative Index to determine the Set Number which is the key to the Volume Number in which the desired Folder appears. The Index serves also for cross-reference of basic chassis used by manufacturers in more than one model.

COMMENTS: This is the usual method of assembly of service literature in volumes. Models of each manufacturer, arranged alphabetically from A to Z are assembled together in each volume. Drawbacks of this system are: considerable time and effort required to insert new Sets of Folders as released, so that they are arranged in proper place in the appropriate volume. To a lesser extent than in Method 2, some confusion may develop in deciding proper sequence of filing in view of the practice of some manufacturers to intermix alphabetical and numerical designations.

METHOD 5 — ALPHABETICAL LIBRARY FILE

PHOTOFACT Folders are filed in alphabetical order, first by manufacturer's name—second by model number.

HOW TO FILE AND USE



Remove the Folders from the mailing envelope. Simply file each Folder in the proper manufacturer's file and arrange in the correct model number order. To find the Folder you want, look for the alphabetical section in which the manufacturer's Folders are located. Then find the required Folder in its model number order.

USE THE PHOTOFACT CUMULATIVE INDEX FOR CROSS-REFERENCE

Because a single receiver chassis may be used by a manufacturer in several models, it is necessary to cross-reference many Folders. If the Folder you want apparently is not in your file, always refer to the Cumulative Index. It will indicate the proper Folder which describes the basic chassis.

COMMENTS: This filing method has the advantage of combining all Folders of any one manufacturer together. Makes it easy to find the Folder desired by quick alphabetical arrangement. With this system it is not necessary to know year of receiver manufacture. Also, if the receiver to be repaired has no identification, it can be recognized from the photographs in the combined group of Folders. Drawbacks of this system are: considerable time required to file Folders alphabetically and effort of opening all binders and inserting individual new Folders in proper place. Also some confusion may develop in deciding proper sequence of filing Folders within individual manufacturer's files in view of the practice of some manufacturers to intermix alphabetical and numerical model designations.

5 GOOD WAYS TO FILE PHOTOFACT FOLDERS

HERE ARE FIVE SUCCESSFUL FILING METHODS FROM WHICH YOU CAN SELECT THE SYSTEM BEST SUITED FOR YOU

In PHOTOFACT Folders you have the most *complete, accurate,* and *uniform* radio service data ever made available. To make this unsurpassed data the easiest and quickest to use, we have conducted an intensive research in filing methods. After interviewing hundreds of Service Engineers and library experts, we have found five good ways to file PHOTOFACT Folders. These methods are described in this bulletin. Method No. 1 has met with wide approval and heavy recommendation. However, the other four methods also have excellent advantages and have been used with success. Study each of the methods recommended. Then select the system which best suits your set-up and method of operation. We are glad to bring you these suggestions as a part of PHOTOFACT's service to the Industry.

THE PHOTOFACT CUMULATIVE INDEX

KEEP IT HANDY

IT'S YOUR KEY TO CONVENIENT EASY LOCATION OF SERVICE DATA NO MATTER WHAT FILING METHOD YOU USE...

If you haven't a copy of the latest PHOTOFACT Cumulative Index, get it from your local radio parts jobber, or write for it direct.

HOWARD W. SAMS & CO., INC.
INDIANAPOLIS 6, IND.

The PHOTOFACT Servicer

JUNE 15, 1947 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ VOL. 3, No. 21

ROBERT M. ELLIS, *Editor*

ANNOUNCING TWO NEW HOWARD SAMS SERVICE AIDS

Here are two important new books, designed to speed your work.

Howard W. Sams' Dial Cord Stringing Guide is a handy pocket sized volume that shows you how to restring the dial on practically every radio receiver issued *from 1938* through 1946.

There are four ways of restringing most dials, and only one right way. You can save hours of time by having Howard Sams' Dial Cord Stringing Guide in your tool kit or coat pocket when you go on your service jobs. The book is a real bargain at 75¢ net to Service Engineers. Available from your authorized distributor about July 15th.

Howard W. Sams' 1947 Automatic Record Changer Manual is a big book—over 400 pages, 8½" x 11" of original text, photographs and drawings covering over 40 post-war models of Automatic Record Changers, *Tape*, *Wire* and *Disc Recorders*. The material is accurate and authentic because it is obtained by examining, testing and photographing actual units. This book will make you an authority on the subject. No modern service shop can afford to be without a copy. Supplied with hard varnished covers and a special Smythe sewed binding that will permit the book to lay *flat* on your work bench; the price is $4.95 net from your authorized distributor. Available about September 1st.

We urge all members of the Institute to place their orders with their parts jobbers now for these two books. Quantities will be limited.

RESERVE YOUR COPIES TODAY—DO IT NOW!

★ ★

NEWS OF CLINIC ACTIVITY

The news of the Howard W. Sams Clinic activity has been received with enthusiasm by almost all of the leading test equipment manufacturers. Eight manufacturers, considered leaders in the field, have offered their wholehearted co-operation to our program, so that arrangements are being concluded to test and evaluate all types standard test equipment under actual shop conditions.

To the best of our knowledge, no organization has ever before attempted to formulate test procedure and correlate it with associated test equipment so as to answer the question . . . "what do I need for my service shop and how do I use it?" . . . from a practical as well as a dollar-and-cents standpoint.

As we told you in SERVICER No. 13, we are endeavoring to bring you information that you can use to improve the efficiency and income of your service shop. Practical data of this kind cannot be obtained from theoretical considerations. The answers must be factual—based on practical experience. Through the actual repairing of hundreds of receivers both in and out of warranty, statistical methods will reveal the actual use and value of each piece of test equipment. Naturally, a program of this originality and magnitude cannot be completed overnight. Rather, the program must be continued over a sufficient span of time to indicate trends as well as current facts.

It is too early to tell you how soon the results of our activity will be brought to you—but we do feel that eventually we will be able to bring you data that will be as vital to your operational procedure as PHOTOFACT Folders have been in bringing data on the receivers. News of our progress will be brought to you in succeeding issues of the SERVICER.

CHICAGO TRADE SHOW

In SERVICER No. 19-20, we told you we would bring you our impressions of the 1947 Radio Parts and Electronic Equipment Conference and Show at the Stevens Hotel in Chicago. What follows is your editor's view.

Superficially, the Chicago Trade Show was just another convention, showing the same old stuff and following the same old pattern. Noted on the convention floor was an "epidemic" of special television and f.m. antennas, including several motor-driven rotating types. Also shown for the first time were several new wire recorders.

However, there were a surprising number of new products which were given only private showings in the hotel rooms. Included in these was an embossing type recorder which provided 15 minutes running time per side of an inexpensive thin plastic disc less than four and one-half inches in diameter—and claiming a fidelity that is nearly flat to 10 kc!

Unveiled in a private showing and of more direct interest to service engineers were two combination AM-FM Signal Generators with wobbled sweep. In the price range of service test equipment (tentatively about $150.00) these new generators had many of the characteristics of high priced laboratory signal generators. Undoubtedly other manufacturers will follow suit, since the servicing of FM and Television equipment has created new requirements in such products.

In all, the Trade Show did not reveal the bright new world of tomorrow—but hope springs eternal in the human breast—and optimistically we will say that next year's show should be a whiz!

★ ★

SHORT WAVE INTERFERENCE

Through the courtesy of the Radio Manufacturers Association we are privileged to quote the following letter from Mr. T. J. Slowie, Secretary of the Federal Communications Commission.

The service suggestions in this letter will be helpful in handling interference complaints arising in the close proximity of short wave transmitters.

"RADIO MANUFACTURERS ASSOCIATION
Suite 701-4 American Building
1317 F Street N. W.
Washington, D. C.

Gentlemen:

The Federal Communications Commission receives a large number of complaints concerning interference to broadcast reception caused by the operation of nearby amateur and other transmitters. A large proportion of these complaints involve small AC-DC receivers having a combination detector first audio amplifier (usually a 12SQ7 or an equivalent type of tube) in which the grid of the triode section is returned to the cathode through a resistor of approximately 10 megohms. This in effect results in having the grid floating with respect to RF, with the result that any strong RF field will result in grid rectification in this tube and consequent interference to normal broadcast reception.

During the investigation of various complaints by the Commission's field engineers and others it has been found that direct RF pickup in the first audio grid circuit, and coupling to this circuit by signals

reaching the receiver through the power line were the most common causes of interference in these AC-DC receivers. The following simple remedies were found to be very effective in eliminating interference in a large percentage of cases investigated:

1. By-pass one side of the heater of the detector-amplifier tube to ground with a 0.001 mf mica or non-inductive paper condenser. This modification alone was found to remedy 95% of all cases of interference to AC-DC receivers when the trouble was caused by power line pickup.
2. Reduce the grid resistor of the first audio tube to the order of 1 to 2 megohms, by-passed at the grid socket terminal by a 100 to 250 mmf mica or non-inductive paper capacitor.

It is therefore requested that this situation be brought to the attention of your members with the purpose in mind of making such minor changes in usual small receiver design as will result in lesser susceptibility to strong RF fields and greater listener satisfaction.

Very truly yours,

T. J. SLOWIE

Secretary—Federal Communications Commission"

REX-2376-A-2

★ ★

FIELD EXPERIENCES

Here is your opportunity for passing practical service experiences to others for the benefit of all. For every service "Field Experience" published, we issue to the author a certificate that is good for one PHOTOFACT Folder Set. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Company, Inc.

★

PHILCO 46-1201
(Photofact Folder 464-35)

"Complaint: Code Interference. A Model 46-1201 Philco Radio-Phono Combination was troubled with a severe case of code interference covering the entire broadcast band. The intensity of the code increased as time changed from day to night and in some cases the broadcast signal was completely obliterated. After some search as to the cause and a remedy I found that by connecting a 0.1 mfd. condenser, 400 volts or more, from the chassis to the terminal of the oscillator coil (Item 39) which serves as a junction for the coil, filter condenser (Item 6) and B-plus leads to the I.F. transformers, that the code interference was eliminated."

Submitted by F. G. Verellen, Verellen Radio Company, 722 Pine Street, Essexville, Michigan

★

BENDIX 736B

"Complaint: High noise level-insensitive.

"I have found several of the above models with an improperly wired loop antenna plug. The connections of the inner and outer coils were interchanged. This trouble may be readily identified by placing a finger on the stator of the RF section of the tuning condenser resulting in a great drop in noise level and increased signal strength."

★

ZENITH 9H079 AND 9H081 SERIES RECORD CHANGERS

"Complaint: Multiple delivery of records.

"The small hinged record separator atop the spindle may have been made too short, allowing two or three records to be ejected at the same time. This may be corrected by making an extension on the end of this separator by adding lead or silver solder, which is then filed off until the tip of the separator extends about ⅔ of the way through the top record when there are two records on the spindle."

Submitted by Mr. Chester S. Heppeard, 120 W. Fayette Street, Celina, Ohio

★

FARNSWORTH ET060, ET061, ET063

"Complaint: Distorted and weak on all but local stations when first turned on, clears up in about an hour. Trouble found to be leakage from primary to secondary of second I.F. transformer."

Submitted by Mr. Robert W. Kelley, 1903 Broad Street, Hartford, Connecticut

★

WESTINGHOUSE H-108

"Complaint: Bursts of static, sometimes set quits for a couple of seconds, but not long enough to check anything. Sounds like arcing from high voltage point to ground.

"Defective 10K, 2 watt screen dropping resistor. Item No. 34 on PHOTOFACT Folder No. 464-19."

★

WESTINGHOUSE H-126

"Complaint: Intermittent.

"Caused by insulation not being taken off properly from the ends of the wires at junction point of B-plus leads and the second filter condenser. The inner insulation covering was mixed in with the soldered joint and caused intermittent operation."

Submitted by: Mr. C. V. Miller, Miller Radio Service, Box 107, Crossett, Arkansas

★

CIRCUIT TESTER

"For testing filament circuits of 1½ volt and 2 volt battery radios, use the base of an old octal tube and wire an 0.06 ampere, 2 volt pilot light bulb across the filament prongs, in the nature of an adapter plug. This, plugged in a radio in place of one of the tubes will light bright enough to tell whether the A voltage of radio is high enough to operate the set properly. I find this especially useful in checking AC-DC battery portables. This method can also be used with a loctal tube base."

Submitted by Mr. Fred P. Steinmetz, Steinmetz Radio Service & Sales, Chandler, Indiana

★

LUBRICATING PUSH BUTTON AND BAND SWITCHES

"Corrosion may be removed without unsoldering any wires or disturbing the switches in the set simply by the use of an atomizer filled with penetrating oil. Squirt a spray of the oil on the switch contacts and work the switch back and forth a few times and they will work like new. Some push button switches are quite inaccessible and this method works like a charm. Penetrating oil has a high resistance and will do no harm to the wiring."

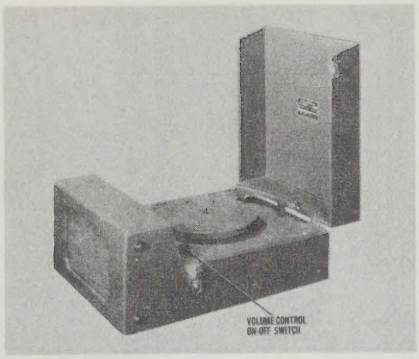
Submitted by Mr. Howard Beidleman, Radio Service Shop, 3 Gardner Court, Washington, New Jersey

PUBLICATION DATES

When will other sets of PHOTOFACT Folders be published?

Volume 3—Set No. 22 ..... **August 15**
Volume 3—Set No. 23 ..... **September 15**
Volume 3—Set No. 24 ..... **September 15**
Volume 3—Set No. 25 ..... **October 15**

If you have been unable to get any issues of PHOTOFACT *Folder Sets, send your order and money directly to us and we will see that you are supplied.*

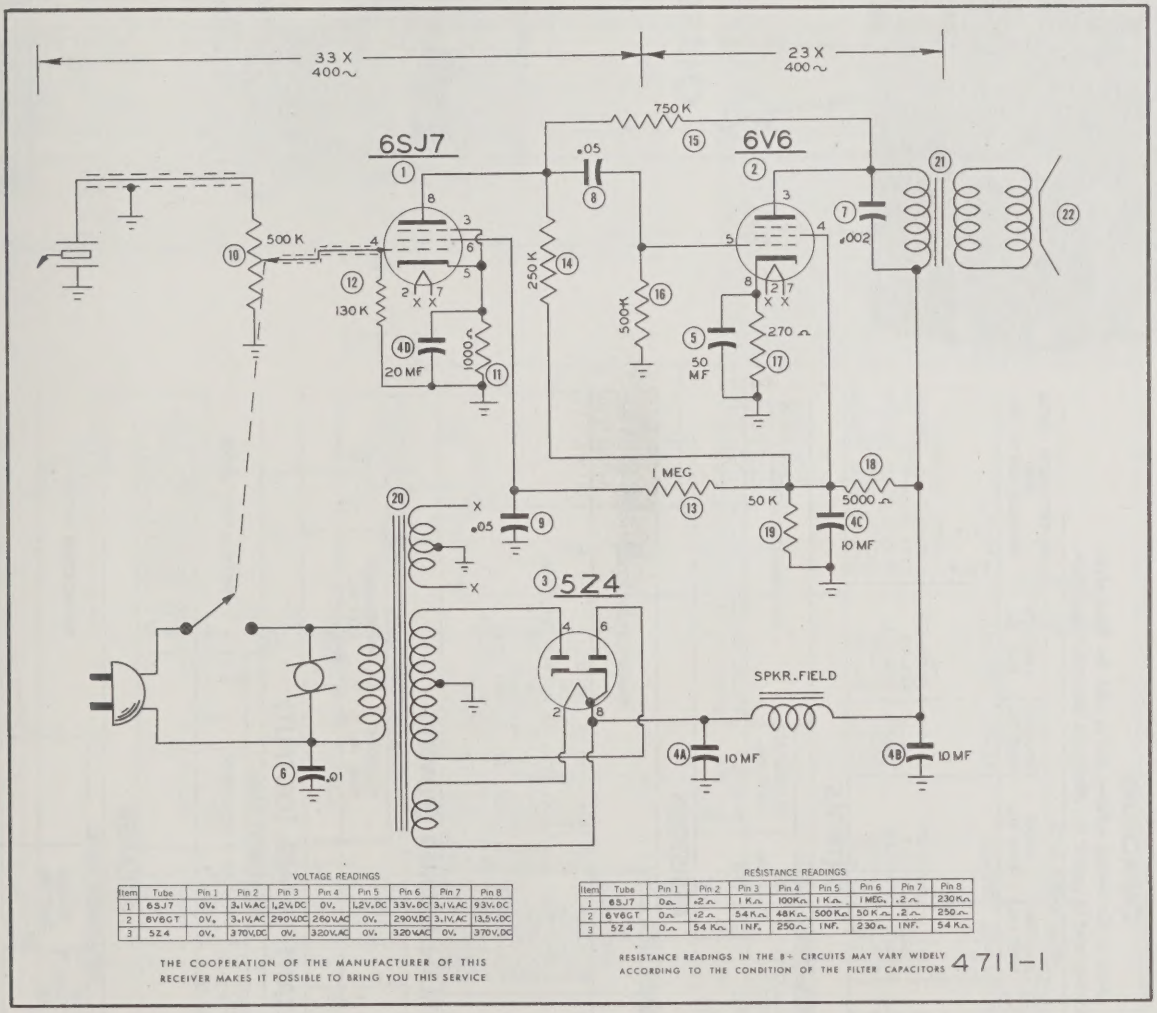


AMPLIPHONE MODEL 10

TRADE NAME	Ampliphone, Model 10
MANUFACTURER	Eastern Electronics, 41 Chestnut St., New Haven, Conn.
TYPE SET	AC Operated Phonograph with 3 Tube Amplifier & Speaker
TUBES (THREE)	Types, 6SJ7 AF Amp., 6V6GT Power Output, 5Z4 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .420 Amp. @ 117 Volts AC

AMPLIPHONE
MODEL 10

AMPLIPHONE
MODEL 10



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0V.	3.1V.AC	1.2V.DC	0V.	1.2V.DC	33V.DC	3.1V.AC	93V.DC
2	6V6GT	0V.	3.1V.AC	290V.DC	260V.AC	0V.	290V.DC	3.1V.AC	13.5V.DC
3	5Z4	0V.	370V.DC	0V.	320V.AC	0V.	320VAC	0V.	370V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0Ω	±2Ω	1 KΩ	100KΩ	1 KΩ	1 MEGΩ	.2Ω	230KΩ
2	6V6GT	0Ω	±2Ω	54KΩ	48KΩ	500KΩ	50 KΩ	.2Ω	250Ω
3	5Z4	0Ω	54 KΩ	INF.	250Ω	INF.	230Ω	INF.	54 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4711-1

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EASTERN ELECTRONICS PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	6SJ7	6SJ7	8N	
2	Power Output	6V6GT	6V6GT	7AC	
3	Rectifier	5Z4	5Z4	5L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EASTERN ELECT. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	10	450		UP7DJ54	FP434	DY-402	EL-431	AF2222J	◓ Filter
B	10	450							■ "
C	10	450							▲ "
D	20	25							Cath. Bypass
5	50	25		BR502	TC29	M-50-25	TA-50	PRS25-50	Output Cath. Bypass
6	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Line Bypass
7	.002	400		DT6D2	TP405	S-6-002	TC-22	484-002	Output Plate Bypass
8	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Audio Coupling
9	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Audio Screen Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EASTERN ELECT. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
10A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 10A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EASTERN ELECT. PART No.	IRC PART No.	IDENTIFICATION CODES
11	1000Ω	½		BTS-1000	Br.-Blk.-Red AF Cathode
12	130KΩ	½		BTS-120K	Br.-Or.-Yl. AF Grid
13	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Screen Dropping
14	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
15	750KΩ	½		BTS-680K	Vi.-Grn.-Yl. Feedback
16	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
17	270Ω	½		BW-½-270	Red-Vi.-Br. Output Cathode
18	5000Ω	1		BTA-4700	Grn.-Blk.-Red Filter
19	50KΩ	2		BT-2-47K	Grn.-Blk.-Or. Bleeder

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: EASTERN ELECT. PART No.	STANCOR PART No.	THORDARSON PART No.	
20	117V AC @ .42A	600V CT @ .055A	4.8V AC @ 2.0A	6.2V AC @ .75A		P-6119	T22R01	

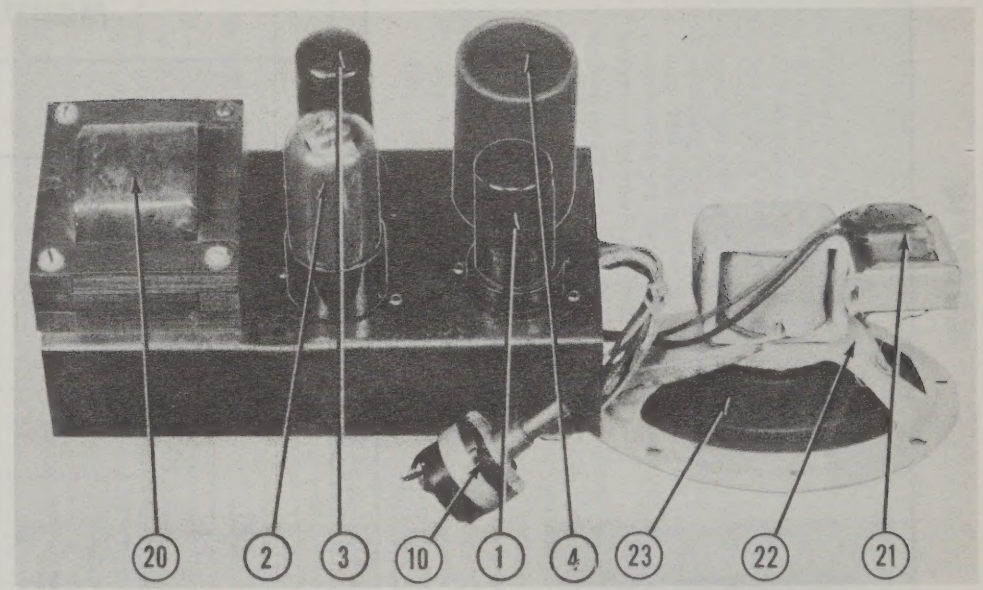
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EASTERN ELECTRONICS PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
21	5300Ω	3.1Ω	450Ω	.5Ω		A-3877*	T22S46*		*Bend mounting tabs down, file out slots and mount on original bracket.

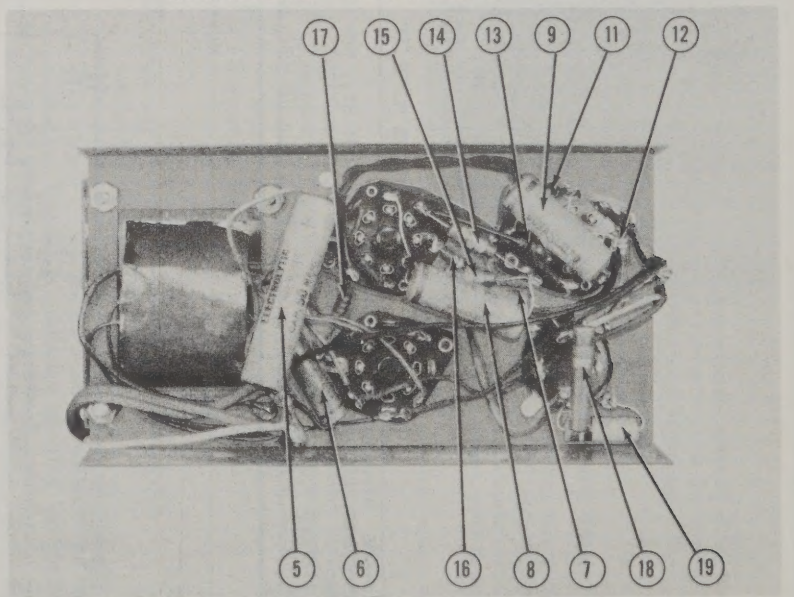
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: EASTERN ELECTRONICS PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD RES.	VC IMP.		ST-165		
22	1000Ω	3.1Ω		Mod. F5-X		
	CONE DIA.	VC DIA.				
23	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW

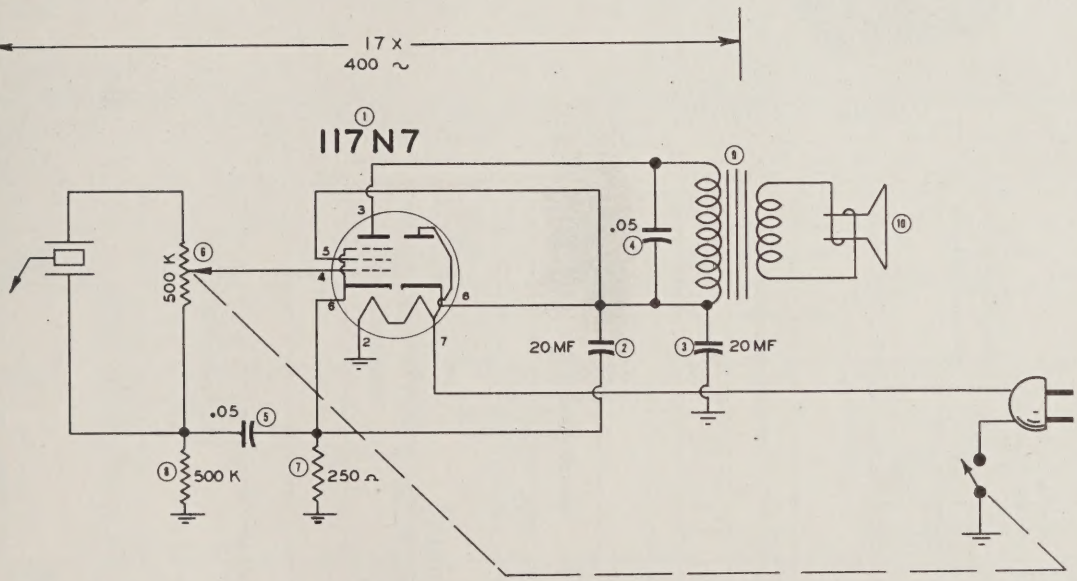


MISCELLANEOUS

ITEM No.	PART NAME	EASTERN ELECTRONICS PART No.	NOTES
	Crystal Cartridge		ASTATIC Type L-70-A

AMPLIPHONE MODEL 20

TRADE NAME	Ampliphone, Model 20
MANUFACTURER	Eastern Electronics Corp., 41 Chestnut St., New Haven, Conn.
TYPE SET	AC Operated Phonograph with 1 Tube Amplifier & Speaker
TUBES (ONE)	Type, 117N7GT Power Output-Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .240 Amp. @ 117 Volts AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	117N7GT	0V.	0V.	130V.DC	0V.	135V.DC	12V.DC	117V.AC	135 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	117N6GT	480 KΩ	0 Ω	30 KΩ	900 KΩ	30 KΩ	250 Ω	190 Ω	30 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4711-12

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EASTERN ELECTRONICS PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Rectifier-Power Output	117N7GT	117N7GT	8AV	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EASTERN ELECT. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
2	20	150		BR2015	TC45	M-20-150	UT-201	PRS150-20	Filter
3	20	150		BR2015	TC45	M-20-150	UT-201	PRS150-20	"
4	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Output Plate Bypass
5	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Phono Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EASTERN ELECT. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
6A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 6A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Eastern Electronics PART No.	IRC PART No.	IDENTIFICATION CODES
7	250Ω	½		BTS-270	Red-Grn.-Br. Output Cathode
8	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Pickup Isolation

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EASTERN ELECTRONICS PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
9	2400Ω	3.5Ω	150Ω	.4Ω		A-3876	T22S45		

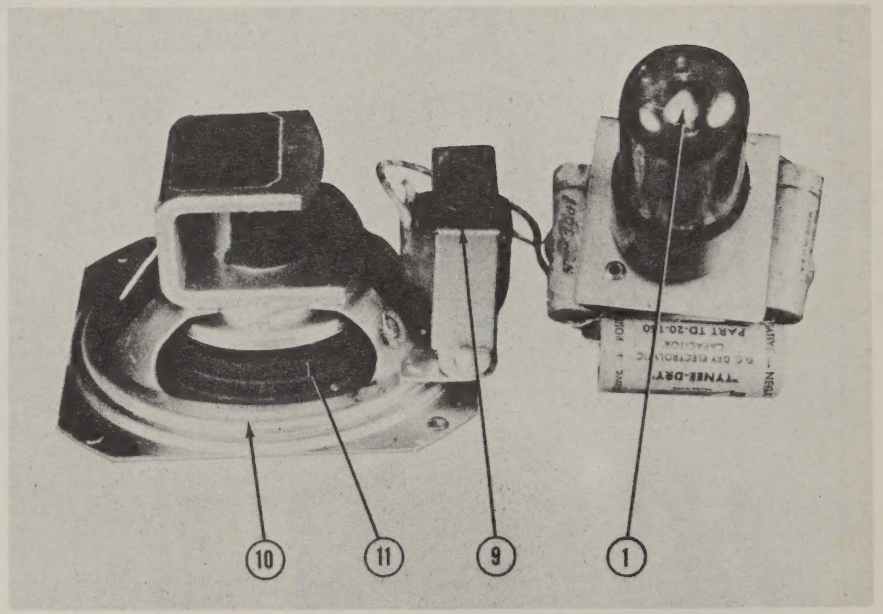
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: EASTERN ELECTRONICS PART No.	JENSEN PART No.		INSTALLATION NOTES
10	FIELD PM	VC IMP. 3.5Ω		ST-113 Mod. P4-X		
11	CONE DIA. 4"	VC DIA. 1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACURER.			

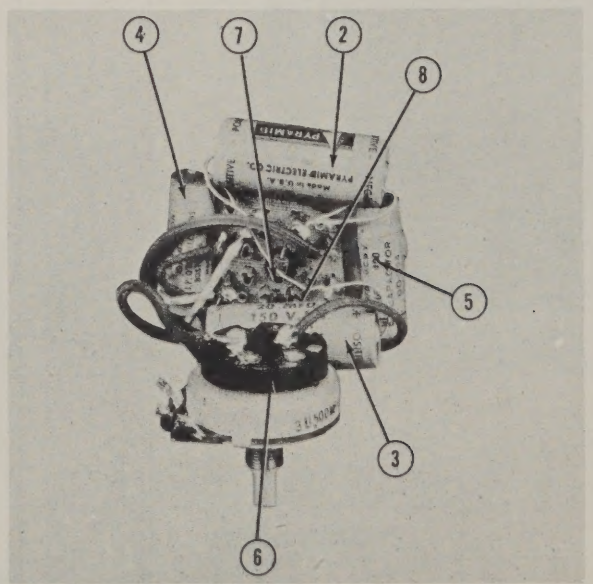
MISCELLANEOUS

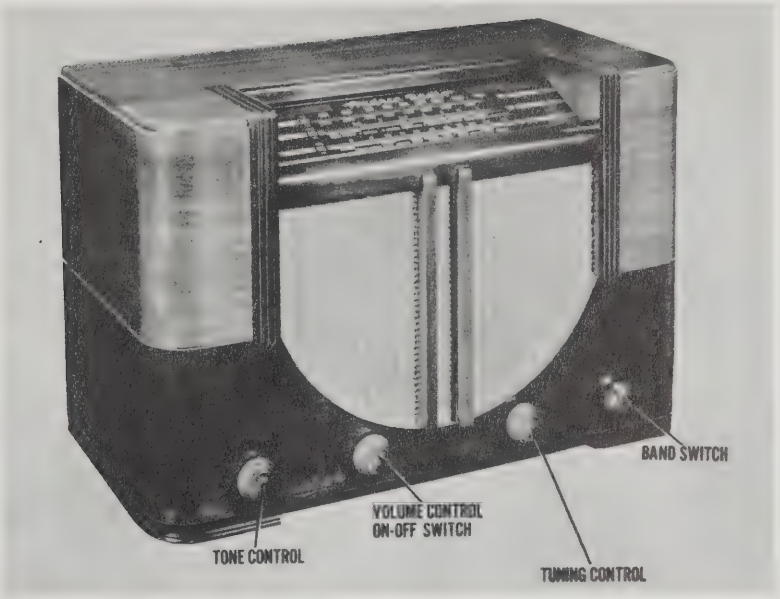
ITEM No.	PART NAME	EASTERN ELECT. PART No.	NOTES
	Crystal Cartridge		ASTATIC Type L-70-A

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





ANDREA MODEL T-16

TRADE NAME	Andrea, Model T-16
MANUFACTURER	Andrea Radio Corp., 27-01 Bridge Plaza North, Long Island City 1, N.Y.
TYPE SET	AC Operated 3 Band Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 6K8 Converter, 6SK7 IF Amp., 6H6 Det.-AVC, 6SF5 AF Amp., 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-240 Volts AC — RATING .540 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC — **SHORT WAVE** 2.2-7.3MC, 7.6-22.4MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Fasten a wire to self-tapping screw located directly below tuning cap. drum. Turn tuning cap. fully closed and set wire so it is directly in front of the zero reading on the scale attached to the drum. Use this wire for reading reference marks mentioned below in dial setting column. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to grid cap. 6K8. Low side to chassis.	470KC	BC completely counter-clockwise	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
2	400Ω	High side to "A" terminal, Low side to "G" on ant. terminal strip.	22MC	SW 2 fully clockwise	83 on reference scale on tuning cap. drum.	"	A5	Adjust for maximum output. Check for image by tuning generator to approximately 23MC. If a second peak is not obtained retune gen. to 22MC and unscrew trimmer A5 until next peak is obtained. Adjust for maximum output and recheck for image.
3	400Ω	"	"	"	Tune for maximum output.	"	A6	Rock tuning cap. and adjust for maximum output.
4	400Ω	"	6MC	SW 1 one position counter clockwise from fully clockwise	80.5 on reference scale on tuning cap. drum.	"	A7	Adjust for maximum output. Check for image as in Step 2.(Tune generator to approximately 7MC)
5	400Ω	"	"	"	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output.
6	250MMFD	"	1500KC	BC fully counter clockwise	88.5 on reference scale on tuning cap. drum.	"	A9	Adjust for maximum output
7	250MMFD	"	"	"	Tune for maximum output.	"	A10	"
8	250MMFD	"	600KC	"	"	"	A11	Rock tuning cap. and adjust for maximum output. Repeat Steps 6, 7 and 8 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

ANDREA MODEL T-16

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ANDREA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6K8	6K8	8K	
2	IF Amp.	6SK7	6SK7	8N	
3	Det.-AVC	6H6	6H6	7Q	
4	AF Amp.	6SF5	6SF5	7AZ	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ANDREA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	450	HC-196	UP2245C	FP339	DY-312	EL-350	AF44J4A	◂ Filter
B	20	450							■ "
C	20	25							▲ Cath. Bypass
8	.05	200	HC-6	DT4S5	TP426	S-4-05	TC-15	484-05	Bias Filter
9	.1	400	HC-4	DT4P1	TP428	S-4-1	TC-1	484-.1	Plate Decoupling
10	.01	1000	HC-98	TVC10S1	TP434	TM-10-01	TR-11	1084-01	Output Plate Bypass
11	.05	600	HC-92	DT6S5	TP415	S-6-05	TC-15	684-05	Audio Coupling
12	.006	600	HC-60	DT6D6	TP409	S-6-006	TC-26	684-006	Tone Compensation
13	.002	600	HC-193	DT6D2	TP405	S-6-002	TC-22	684-002	Audio Coupling
14	.05	600	HC-92	DT6S5	TP415	S-6-05	TC-15	684-05	RF Bypass Pwr. Supp.
15	.05	200	HC-6	DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
16	250	500	HC-89	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Diode Filter
17	5000	300	HC-126	1W5D5	MC465	MW.5-25	1FM-25	1467-005	Fixed Padder
18	1500	300	HC-125	1W5D15	MC456	MW.5-215	1FM-215	1467-0015	" "
19	100	500	HC-93	5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ANDREA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500KΩ	1	FM-5015	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 20A per instructions
C	Switch		" "	M26	41	SW-A	" " " "
21A	250KΩ	1	FM-5016	UM149	D11-130	AM-55-S	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 21A per instructions

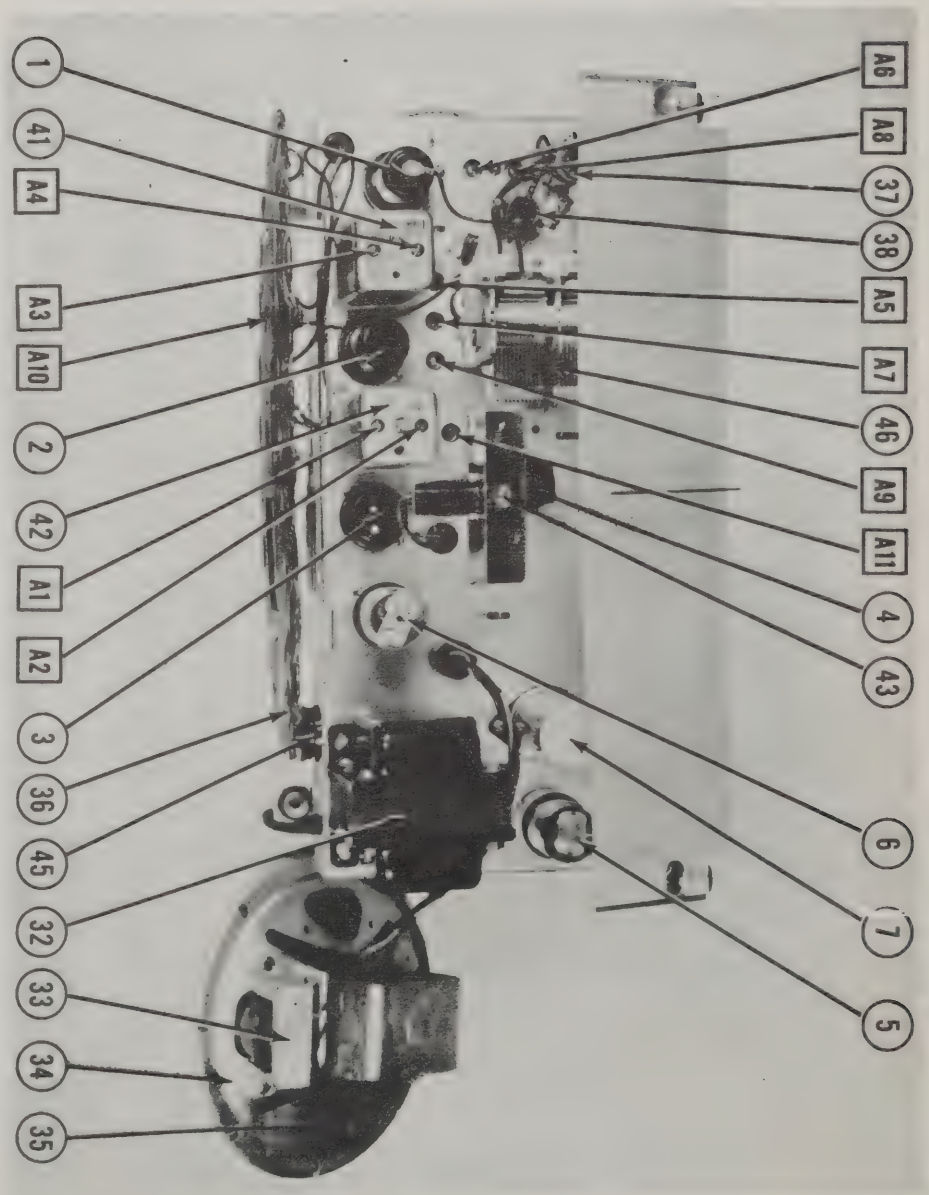
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ANDREA PART No.	IRC PART No.	IDENTIFICATION CODES
22	25KΩ	¼	GR-12	BTS-27K	Red-Grn.-Or. Oscillator Grid
23	200Ω	¼	GR-49	BW-½-220	Red-Blk.-Br. Parasitic Suppressor
24	10KΩ	2	GR-69	BT-2-10K	Br.-Blk.-Or. Voltage Dropping
25	2 Meg.	¼	GR-23	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
26	50KΩ	¼	GR-448	BTS-47K	Grn.-Blk.-Or. Series Volume Control
27	10 Meg.	¼	GR-108	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
28	240KΩ	¼	GR-46	BTS-220K	Red-Yl.-Yl. AF Plate Load
29	250Ω	1	GR-64	BW-1-270	Red-Grn.-Br. Output Cathode
30	100Ω	¼	GR-84	BW-½-100	Br.-Blk.-Br. Filter
31	25Ω	¼	GR-76	BW-½-27	Red-Grn.-Blk. Bias

TRANSFORMER (POWER)

ITEM No.	RATING: PRI. 1	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: ANDREA PART No.	STANCOR PART No.	THORDARSON PART No.	
32	117V AC @ .54A PRI. 2 230V AC	600V CT @ .076A	5.0V AC @ 1.9A	6.2V AC @ 1.8A	FM-724			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ANDREA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
33	4100Ω	3.5Ω	255Ω	.4Ω	Part of FM-727	A-3849	T2S82		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ANDREA PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.		ST-166		
34	770Ω	3.5Ω	FM-727	Mod. F6-X		
	CONE DIA.	VC DIA.				
35	6"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

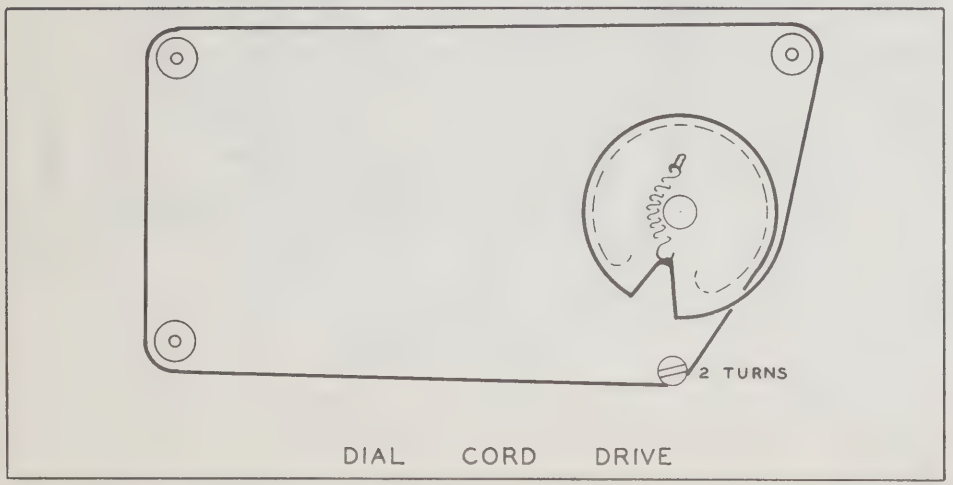
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ANDREA PART No.	MEISSNER PART No.	
36	Loop Ant.	.1Ω	1Ω	SA-224		
37	SW Ant. Coil	16Ω	.3Ω	SA-221	14-1041	
38	SW Ant. Coil	.8Ω	0Ω	SA-223	14-1044	
39A	BC Osc. Coil	1.8Ω	5.5Ω	SA-222		Items 39A & 39B wound on same form.
B	SW Osc. Coil	2.5Ω	.3Ω			
40	SW Osc. Coil	.8Ω	0Ω	SA-193		
41	Input IF	12Ω	12Ω	SA-200	16-6658	
42	Output IF	19Ω	19Ω	SA-195	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ANDREA PART No.		
43	Bayonet	6-8	0.25	Blue	FM-723		Type 44

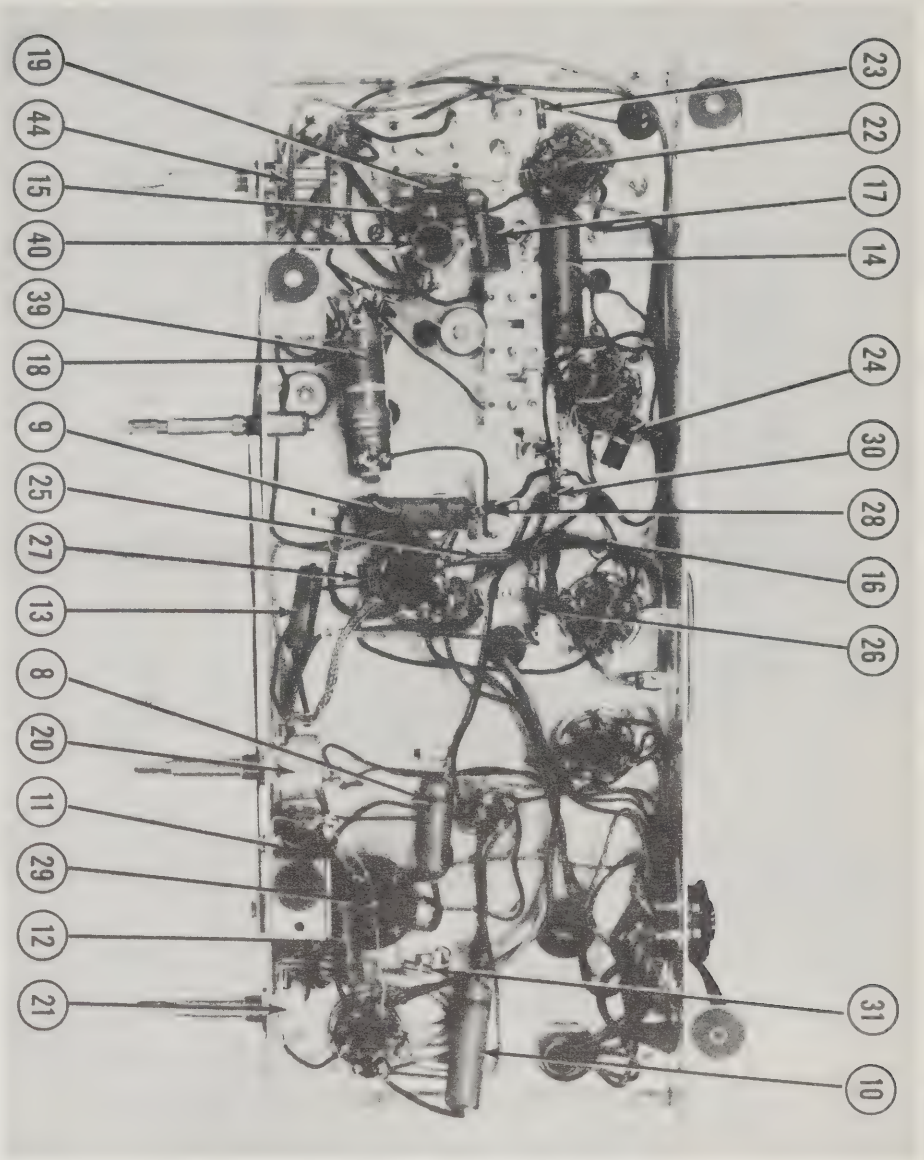
MISCELLANEOUS

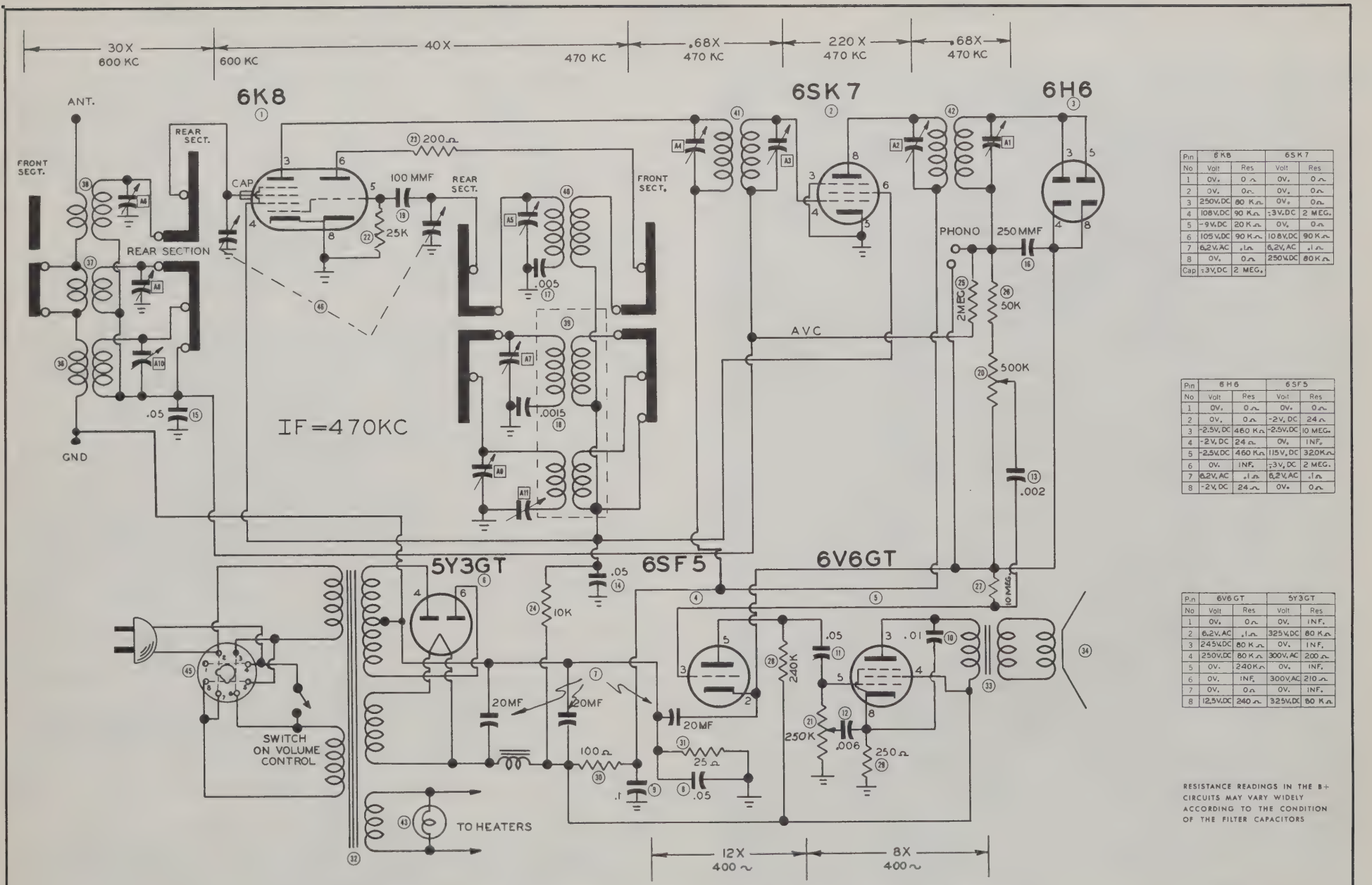
ITEM No.	PART NAME	ANDREA PART No.	NOTES
44	Bandswitch	FM-5014	
45	Voltage Selector		
46	2 Gang Var. Cap.	FM-839	20-484 MMF-Each section



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





Pin No	6K8 Volt	6K8 Res	6SK7 Volt	6SK7 Res
1	0V.	0Ω	0V.	0Ω
2	0V.	0Ω	0V.	0Ω
3	250V.DC	80 KΩ	0V.	0Ω
4	108V.DC	90 KΩ	-3V.DC	2 MEG.
5	-9V.DC	20 KΩ	0V.	0Ω
6	105V.DC	90 KΩ	108V.DC	90 KΩ
7	6.2V.AC	.1Ω	6.2V.AC	.1Ω
8	0V.	0Ω	250V.DC	80 KΩ
Cap	-3V.DC	2 MEG.		

Pin No	6H6 Volt	6H6 Res	6SF5 Volt	6SF5 Res
1	0V.	0Ω	0V.	0Ω
2	0V.	0Ω	-2V. DC	24Ω
3	-2.5V. DC	460 KΩ	-2.5V.DC	10 MEG.
4	-2V. DC	24Ω	0V.	INF.
5	-2.5V.DC	460 KΩ	115V. DC	320KΩ
6	0V.	INF.	-3V. DC	2 MEG.
7	6.2V. AC	.1Ω	6.2V. AC	.1Ω
8	-2V. DC	24Ω	0V.	0Ω

Pin No	6V6GT Volt	6V6GT Res	5Y3GT Volt	5Y3GT Res
1	0V.	0Ω	0V.	INF.
2	6.2V. AC	.1Ω	325V.DC	80 KΩ
3	245V.DC	80 KΩ	0V.	INF.
4	250V.DC	80 KΩ	300V. AC	200Ω
5	0V.	240KΩ	0V.	INF.
6	0V.	INF.	300V.AC	210Ω
7	0V.	0Ω	0V.	INF.
8	12.5V.DC	240Ω	325V.DC	80 KΩ

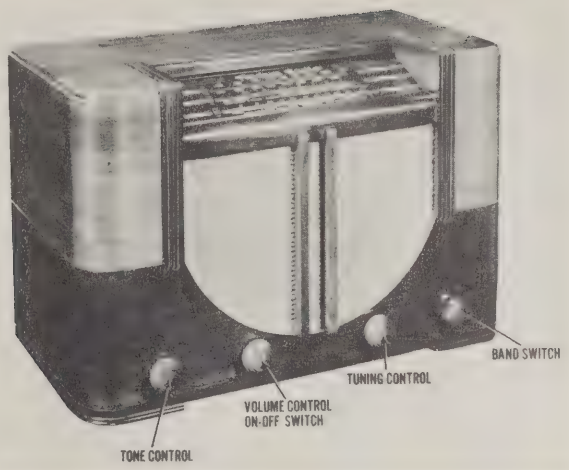
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4711-2

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



ANDREA MODEL T-U16

TRADE NAME Andrea, Model T-U16
MANUFACTURER Andrea Radio Corp., 27-01 Bridge Plaza North, Long Island City 1, N.Y.
TYPE SET AC-DC Operated 3 Band Superheterodyne Receiver with Loop Antenna
TUBES (SIX) Types, 6K8 Converter, 6SK7 IF Amp., 6H6 Det.-AVC, 6SF5 AF Amp., 25L6G Power Output, 25Z6G Rectifier.

POWER SUPPLY 100-250 Volts AC-DC RATING .400 Amp, @ 117 Volts AC
TUNING RANGE—BROADCAST 540-1620KC **SHORT WAVE** 2.2-7.3MC 7.6-22.4 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Fasten a wire to self-tapping screw located directly below tuning cap. drum. Turn tuning cap. fully closed and set wire so it is directly in front of the zero reading on the scale attached to the drum. Use this wire for reading reference marks mentioned below in dial setting column. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to grid cap. of 6K8. Low side to chassis.	470KΩ	BC (fully counter-clock-wise)	Tuning cap. open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	400Ω	High side to "A" terminal, Low side to "G" terminal, on ant. terminal strip.	22MC	SW 2 (fully clock-wise)	83 on reference scale on tuning cap. drum.	"	A5	Adjust for maximum output. Check for image by turning generator to approximately 23MC. If a second peak is not obtained retune signal generator to 22 MC and unscrew A5 until the next peak is obtained. Adjust for maximum output and recheck for image.
3	400Ω	"	"	"	Tune for maximum output.	"	A6	Rock tuning cap. and adjust for maximum output.
4	400Ω	"	6MC	SW 1 (second position clockwise)	80.5 on reference scale on tuning cap. drum.	"	A7	Adjust for maximum output. Check for image as in Step 2 (Tune signal generator to approx. 7MC.)
5	400Ω	"	"	"	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output.
6	250MMFD	"	1500KC.	BC (fully counter clockwise)	88.5 on reference scale on tuning cap. drum.	"	A9	Adjust for maximum output.
7	250MMFD	"	1500KC	"	Tune for maximum output.	"	A10	" " " "
8	250MMFD	"	600KC	"	"	"	A11	Rock tuning cap. and adjust for maximum output. Repeat Steps 6, 7 and 8 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ANDREA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
38	1950Ω	3.4Ω	190Ω	.6Ω	Part of FM-709	A-3849	T22887		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ANDREA PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.		ST-189		
39	400Ω	3.4Ω	FM-706	Mod. F6-X		
	CONE DIA.	VC DIA.				
40	6"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

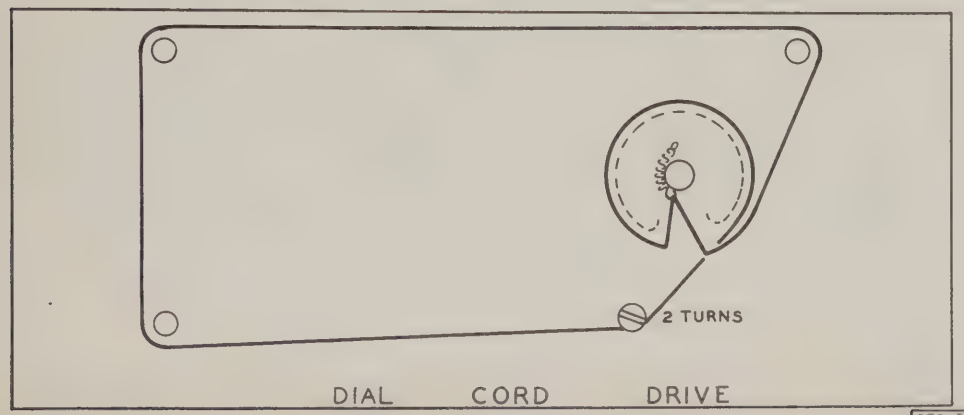
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ANDREA PART No.	MEISSNER PART No.	
41	Loop Ant.	.1Ω	1Ω	SA-224		
42	SW Ant.Coil	16Ω	.3Ω	SA-221	14-1041	
43	SW Ant.Coil	.8Ω	0Ω	SA-223	14-1044	
44A	BC Osc. Coil	1.8Ω	5.5Ω	SA-222		Items 44A & 44B wound on same form
B	SW Osc. Coil	2.5Ω	.3Ω			
45	SW Osc. Coil	.8Ω	0Ω	SA-193		
46	Input IF	13.5Ω	13Ω	SA-194	16-6658	
47	Output IF	19Ω	19Ω	SA-195	16-6660	

DIAL LIGHT

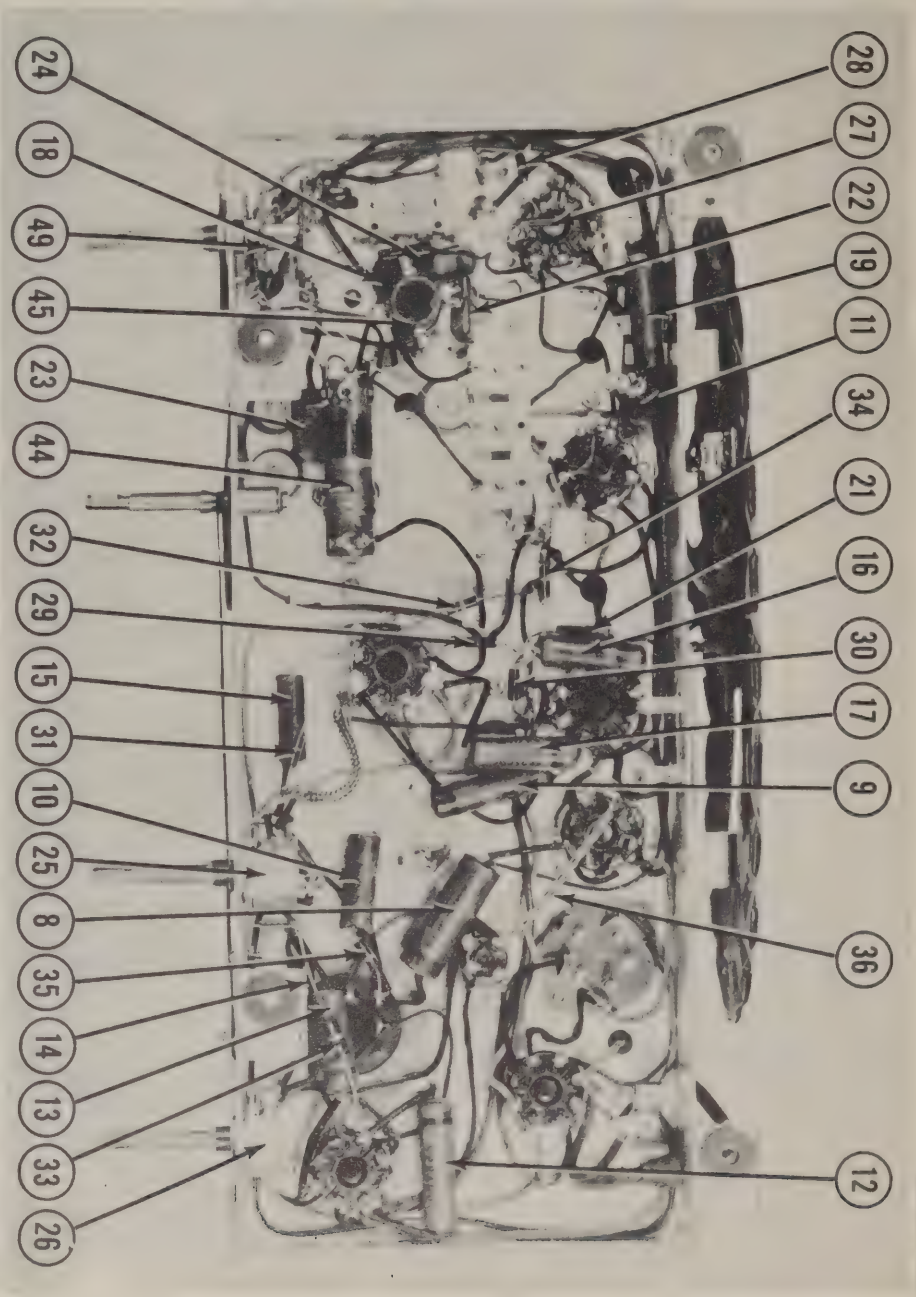
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ANDREA PART No.		
48	Bayonet	6-8	0.25	Blue	FM-723		Type 44

MISCELLANEOUS

ITEM No.	PART NAME	ANDREA PART No.	NOTES
49	Bandswitch	FM-5014	
50	Voltage Selector		
51	2 Gang Var. Cap.	FM-839	20-484 MMF-each section



CHASSIS—BOTTOM VIEW



ANDREA MODEL T-U16

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ANDREA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6K8	6K8	8K	
2	IF Amp.	6SK7	6SK7	7N	
3	Det.-AVC	6H6	6H6	7Q	
4	AF Amp.	6SF5	6SF5	6AB	
5	Power Output	25L6G	25L6G	7AC	
6	Rectifier	25Z6G	25Z6G	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ANDREA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	HC-191	UP7DJ19‡	FP306	DY-305	EL-343	AF84D4A	◓ Filter
B	20	150							■ "
C	25	15							▲ Cath. Bypass
8	.05	600	HC-92	DT6S5	TP415	S-6-05	TC-15	684-05	Line Filter
9	.1	200	HC-5	DT4P1	TP428	S-4-1	TC-1	484-.1	Bias Filter
10	.05	200	HC-6	DT4S5	TP426	S-4-05	TC-15	484-05	" "
11	.25	200	HC-19	DT4P25	TP430	S-4-25	TC-2	484-.25	Plate Decoupling
12	.025	600	HC-192	DT6S25	TP451	S-6-025	TC-13	684-025	Output Plate Bypass
13	.05	200	HC-6	DT4S5	TP426	S-4-05	TC-15	484-05	Audio Coupling
14	.006	600	HC-60	DT6D6	TP409	S-6-006	TC-26	684-006	Tone Compensation
15	.002	600	HC-193	DT6D2	TP405	S-6-002	TC-22	684-002	Audio Coupling
16	.05	200	HC-6	DT4S5	TP426	S-4-05	TC-15	484-05	Phono Coupling
17	.05	200	HC-6	DT4S5	TP426	S-4-05	TC-15	484-05	Phono Isolation
18	.05	200	HC-6	DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
19	.01	400	HC-32	DT4S1	TP421	S-4-01	TC-11	484-01	Grd. Isolation
20	.01	400	HC-32	DT4S1	TP421	S-4-01	TC-11	484-01	Ext. Ant. Coupling
21	250	500	HC-89	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Diode Filter
22	5000	300	HC-126	1W5D5	MC465	MW.5-25	1FM-25	1467-005	Fixed Padder
23	1500	300	HC-125	1W5D15	MC456	MW.5-215	1FM-215	1467-0015	" "
24	100	500	HC-93	5W5T1	MC235	MO.5-31	1FM-31	1467-0001	Osc. Grid Capacitor

‡Do not use one 40 MFD section.

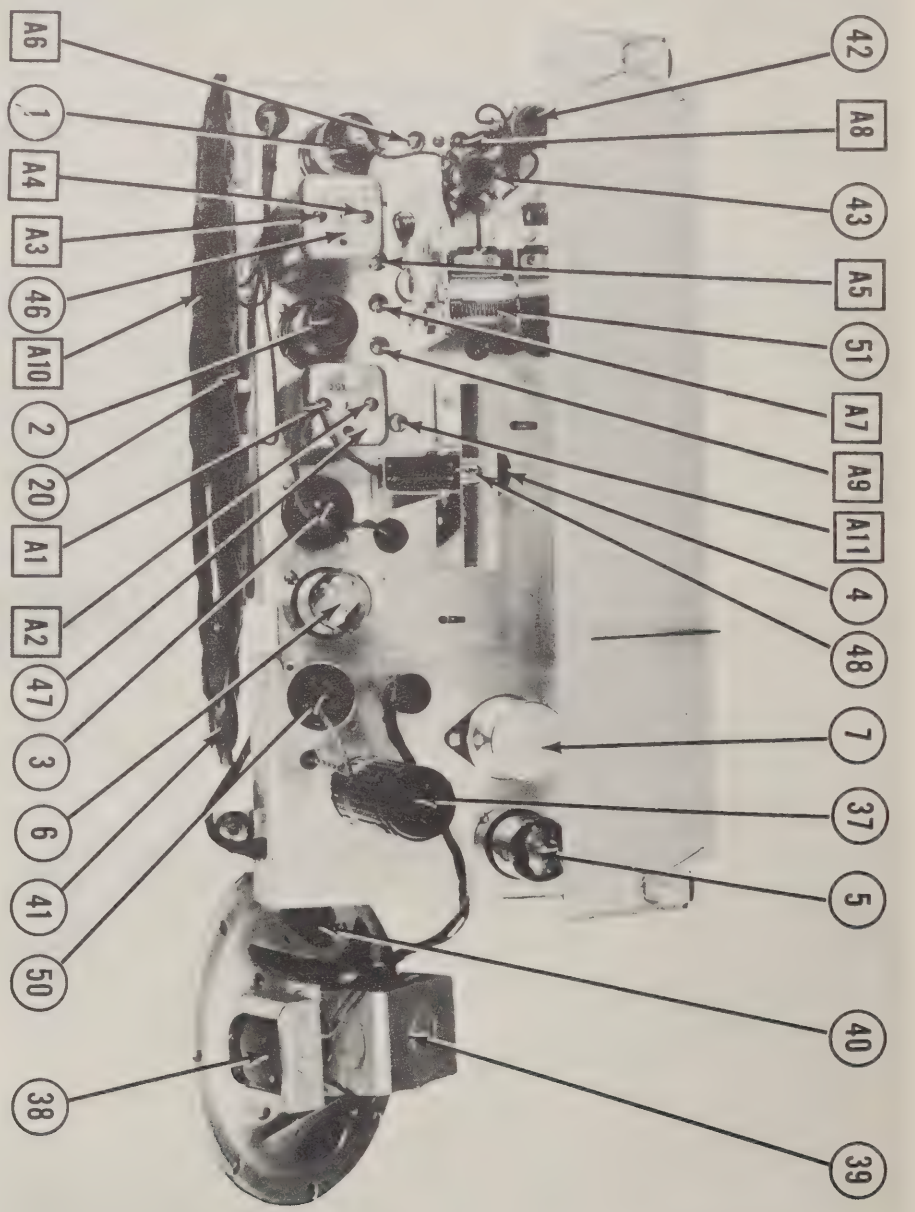
CONTROLS

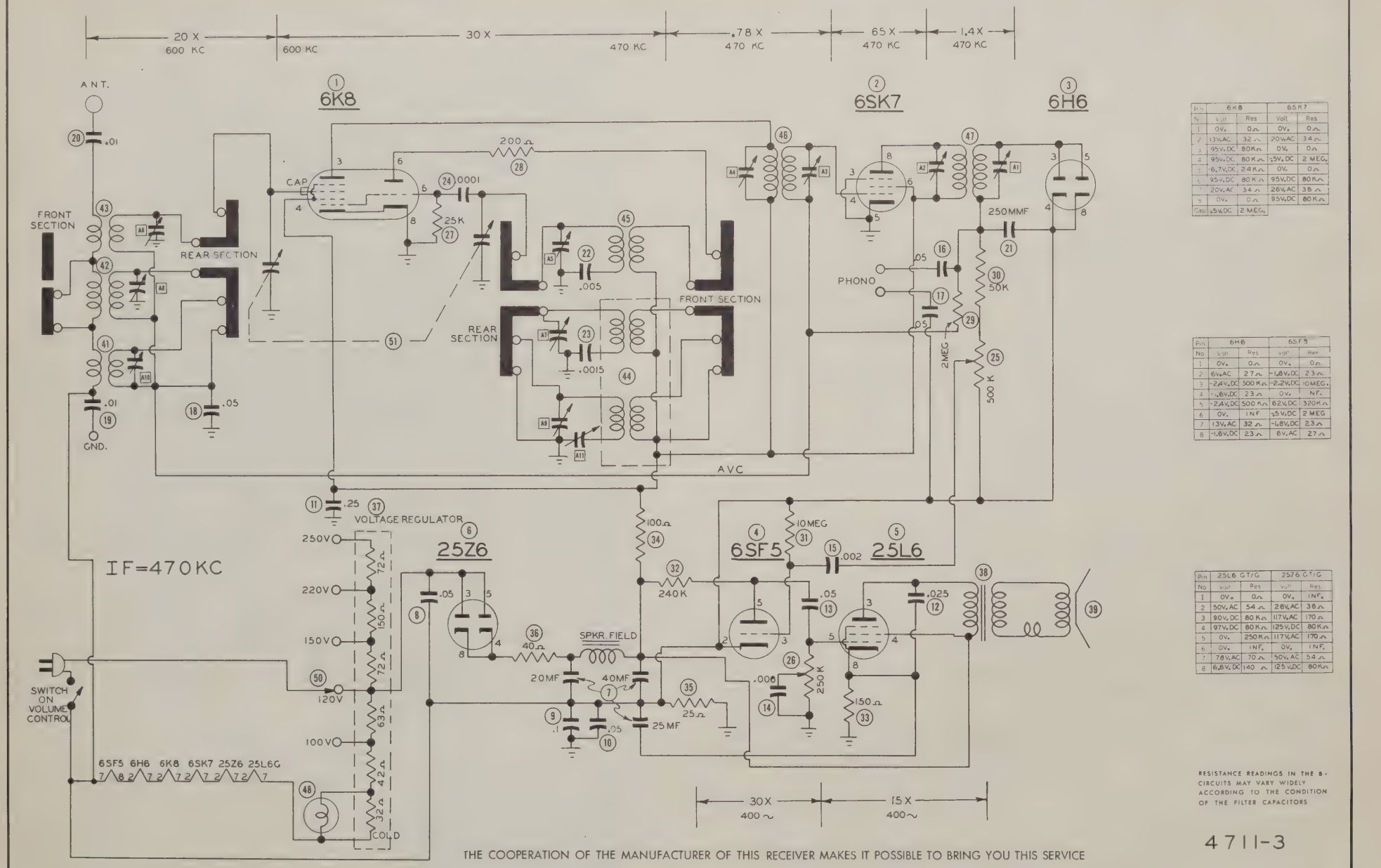
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ANDREA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	1	FM-5015	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 25A per instructions
C	Switch		" "	M26	41	SW-A	" " " " " "
26A	250KΩ	1	FM-5016	UM149	D11-130	AM-55-S	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 26A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ANDREA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
27	25KΩ	¼	GR-12	BTS-27K	Red-Grn.-Or. Oscillator Grid
28	200Ω	¼	GR-49	BW-½-220	Red-Blk.-Br. Parasitic Suppressor
29	2 Meg.	¼	GR-23	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
30	50KΩ	¼	GR-448	BTS-47K	Grn.-Blk.-Or. Series Volume Control
31	10 Meg.	¼	GR-108	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
32	240KΩ	¼	GR-46	BTS-220K	Red-Yl.-Yl. AF Plate Load
33	150Ω	1	GR-109	BW-1-150	Br.-Grn.-Br. Output Cathode
34	100Ω	¼	GR-84	BW-½-100	Br.-Blk.-Br. Filter
35	25Ω	¼	GR-76	BW-½-27	Red-Grn.-Blk. Bias
36	40Ω	1	GR-48	BW-1-39	Surge Limiter
37A	63Ω		FM-706		Line Dropping
B	72Ω				" "
C	150Ω				" "
D	72Ω				" "
E	42Ω				" "
F	32Ω				Pilot Light Shunt

CHASSIS—TOP VIEW





Pin No	6K8 Volt	6K8 Res	6SK7 Volt	6SK7 Res
1	0V.	0Ω	0V.	0Ω
2	13V.AC	32Ω	20V.AC	34Ω
3	95V.DC	80KΩ	0V.	0Ω
4	95V.DC	80KΩ	±5V.DC	2 MEG.
5	-6.7V.DC	24KΩ	0V.	0Ω
6	95V.DC	80KΩ	95V.DC	80KΩ
7	20V.AC	34Ω	26V.AC	38Ω
8	0V.	0Ω	95V.DC	80KΩ
Cap.	±5V.DC	2 MEG.		

Pin No	6H6 Volt	6H6 Res	6SF5 Volt	6SF5 Res
1	0V.	0Ω	0V.	0Ω
2	6V.AC	27Ω	-1.8V.DC	23Ω
3	-2.4V.DC	500KΩ	-2.2V.DC	10MEG.
4	-1.8V.DC	23Ω	0V.	INF.
5	-2.4V.DC	500KΩ	62V.DC	320KΩ
6	0V.	INF.	±5V.DC	2 MEG
7	13V.AC	32Ω	-1.8V.DC	23Ω
8	-1.8V.DC	23Ω	6V.AC	27Ω

Pin No	25L6 G.T/G Volt	25L6 G.T/G Res	25Z6 G.T/G Volt	25Z6 G.T/G Res
1	0V.	0Ω	0V.	INF.
2	50V.AC	54Ω	26V.AC	38Ω
3	90V.DC	80KΩ	117V.AC	170Ω
4	97V.DC	80KΩ	125V.DC	80KΩ
5	0V.	250KΩ	117V.AC	170Ω
6	0V.	INF.	0V.	INF.
7	78V.AC	70Ω	50V.AC	54Ω
8	6.8V.DC	140Ω	125V.DC	80KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

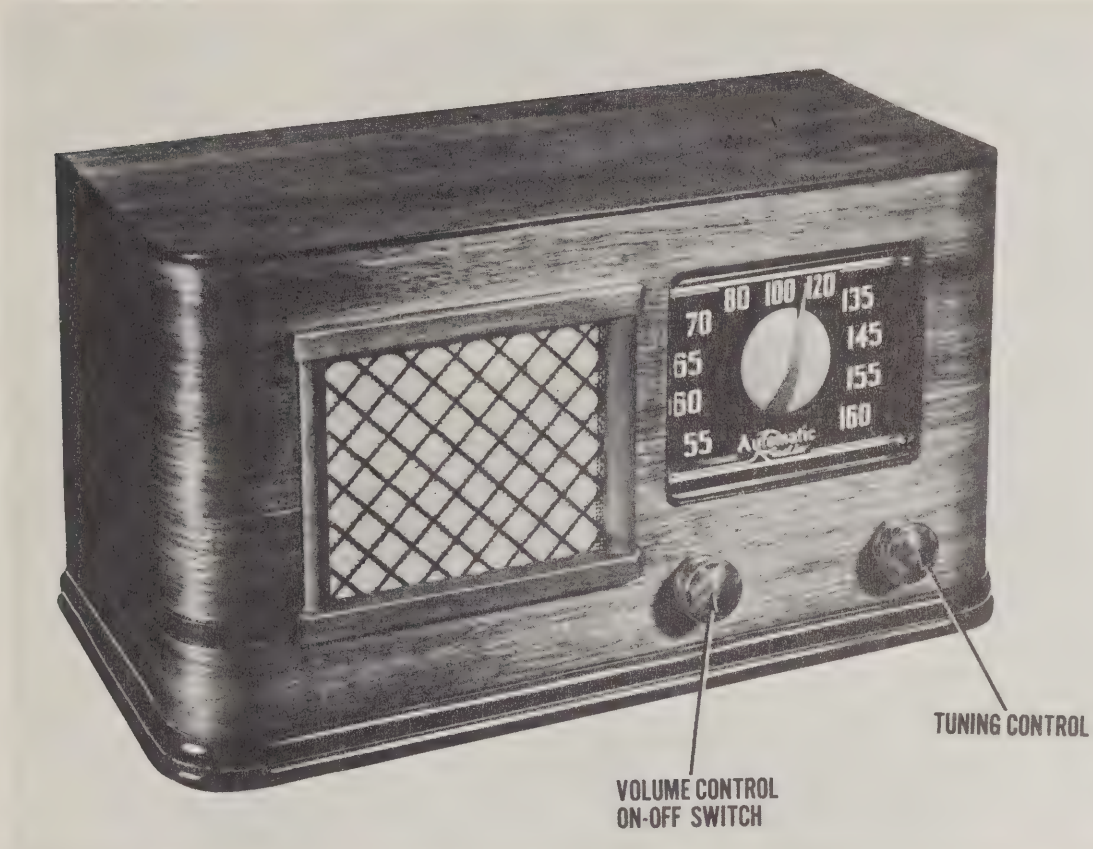
4711-3

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

AUTOMATIC
MODEL 720



AUTOMATIC
MODEL 720

AUTOMATIC MODEL 720

TRADE NAME	Automatic, Model 720
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston, Mass.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .260 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 8 (grid) of 12SA7 Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to ext. grnd. lead.	"	"	"	A5	Adjust for minimum output.
3	200MMFD	"	1620KC	"	"	A6,A7.	Adjust for maximum output.
4	200MMFD	"	1400KC	Tune for maximum output.	"	A8	Adjust for maximum output. Repeat Steps 3-4.
5	200MMFD	"	1350KC	"	"		Set pointer at 1350KC.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUTOMATIC PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	50	150		BR5015	TC49	M-50-150	UT-501	PRS150-50	Filter
8	30	150		BR3015	TC47	M-30-150	UT-301	PRS150-30	"
9	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
10	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Output Plate Bypass
11	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
12	.002	600		DT6D2	TP405	S-6-002	TC-22	684-002	" "
13	.1	200		DT4P1	TP428	S-4-1	TC-1	484-.1	AVC Filter
14	200	500		5W5T2	MC237	M0.5-32	1FM-32	1468-0002	Audio Plate Bypass
15	500	500		5W5T5	MC245	M0.5-35	1FM-35	1468-0005	Diode Filter
16	100	500		5W5T1	MC235	M0.5-31	1FM-31	1468-0001	Osc. Grid Capacitor
17	500	500		5W5T5	MC245	M0.5-35	1FM-35	1468-0005	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	250KΩ	1	RV-46	MR44†	D13-130†	M-64-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

†Install a 22KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (Control viewed from shaft side, terminals down.)

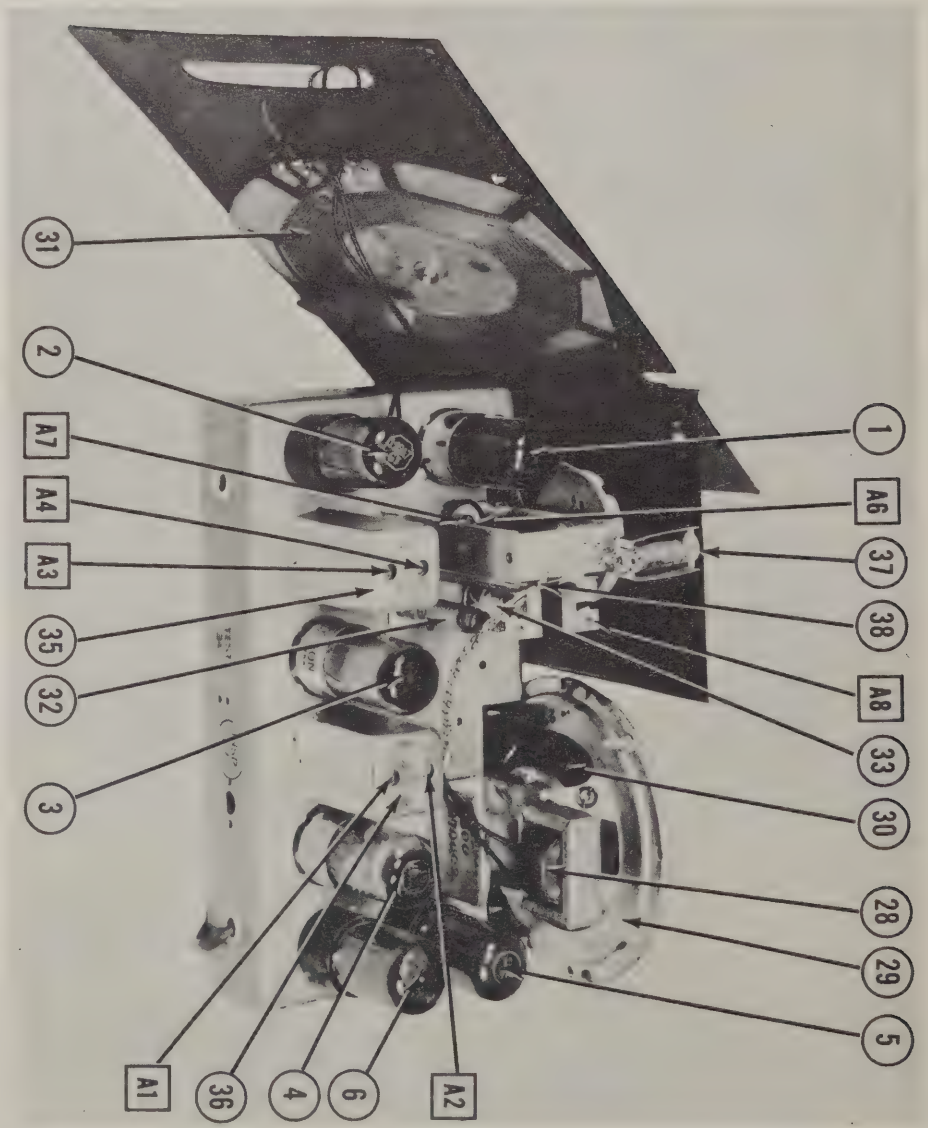
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	IDENTIFICATION CODES
19	4000Ω	½		BTS-3900	Yl.-Blk.-Red RF Plate Load
20	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Converter Grid
21	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
22	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
23	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
24	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
25	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
26	150Ω	1		BW-1-150	Br.-Grn.-Br. Output Cathode
27	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AUTOMATIC PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
28	2450Ω	3.4Ω	270Ω	1.0Ω		A-3676*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AUTOMATIC PART No.	JENSEN PART No.		
29	FIELD	VC IMP.		ST-105		
	PM	3.4Ω		Mod. P5-X		
30	CONE DIA.	VC DIA.	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER			
	4-3/4"	1/2"				

R F COILS

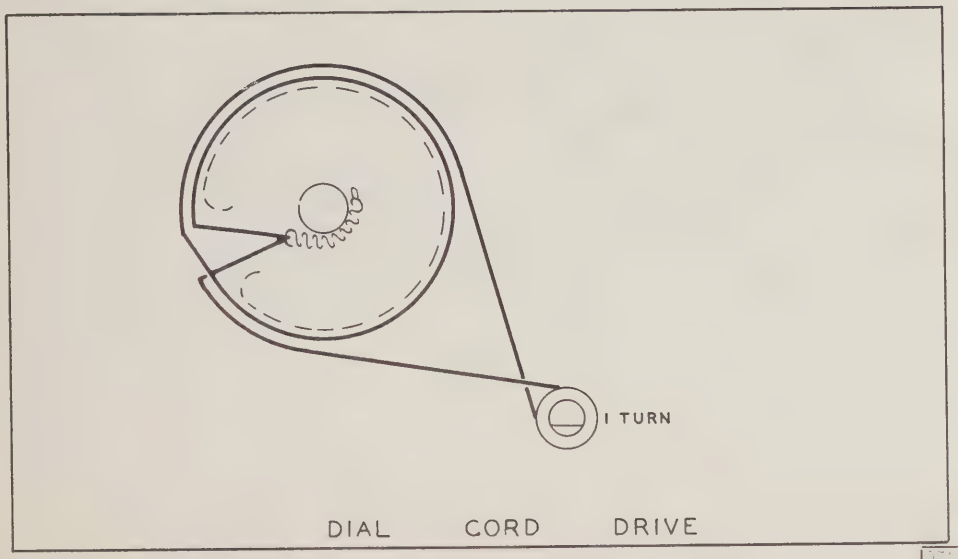
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AUTOMATIC PART No.	MEISSNER PART No.	
31	Loop Ant.	0Ω	1Ω			Items 32 & 33 are slug tuned and ganged together.
32	Ant. Coil		24Ω			
33	Osc. Coil	.5Ω	3.5Ω			
34	Wave Trap		40Ω			
35	Input IF	20Ω	20Ω		16-6658	
36	Output IF	19Ω	20Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AUTOMATIC PART No.		
37	Bayonet	6-8	0.15	Brown			Type 47

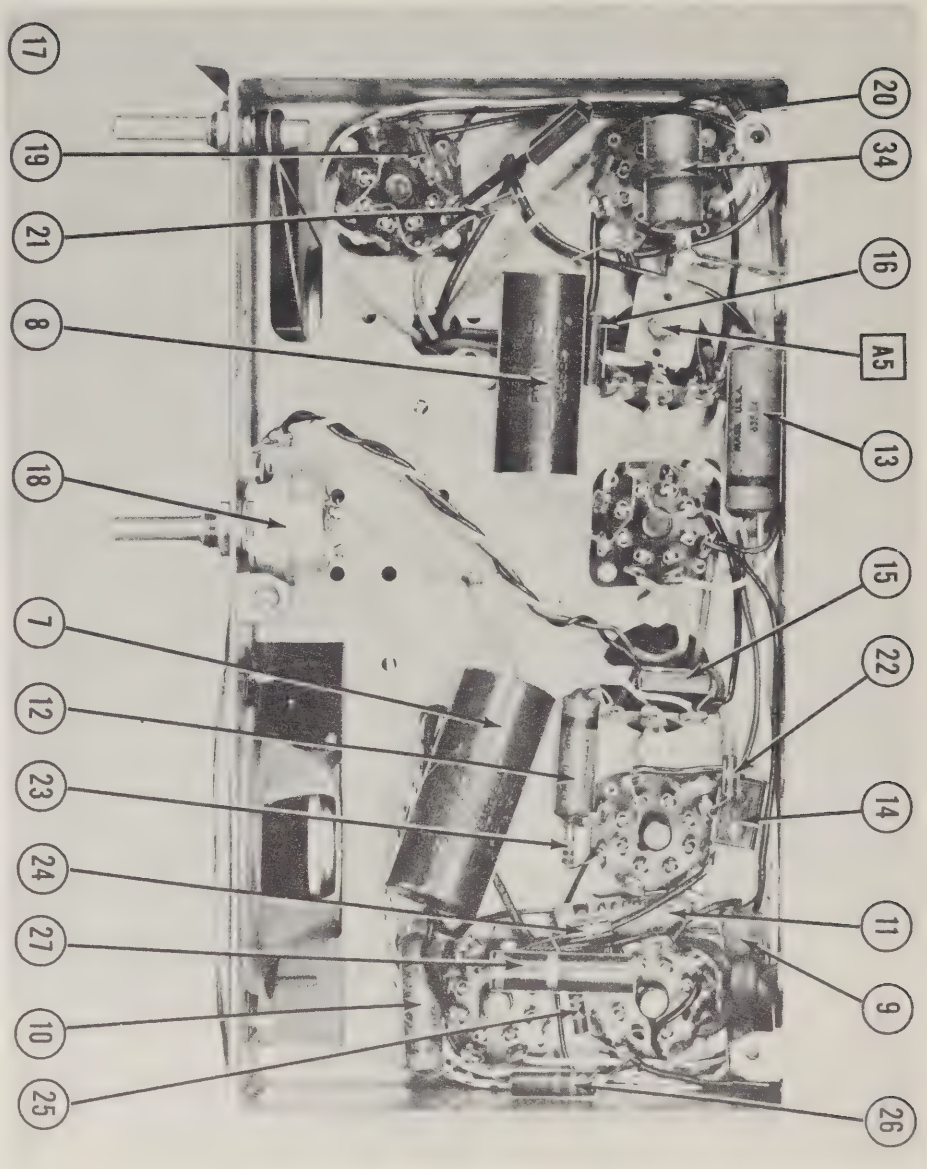
MISCELLANEOUS

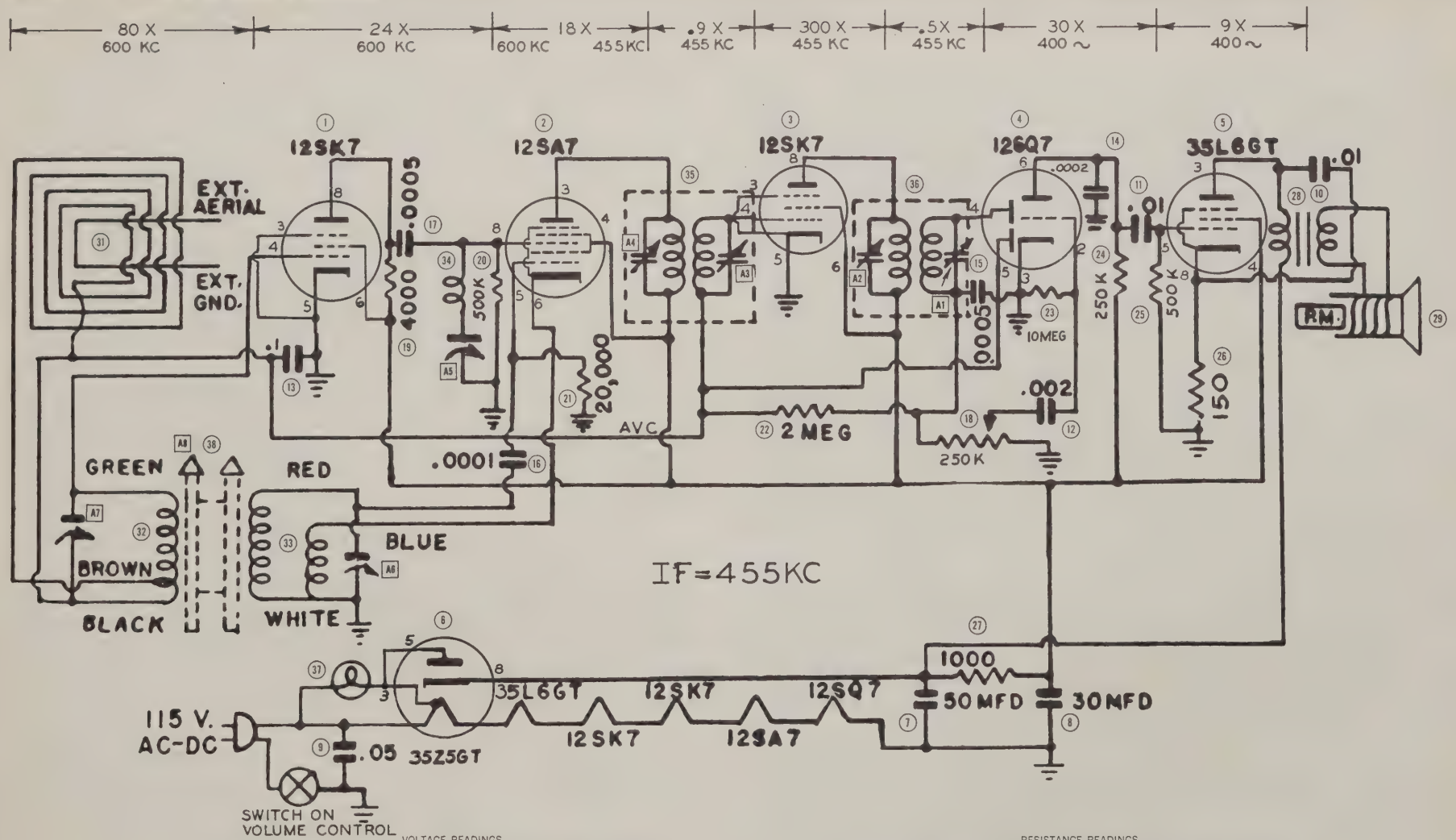
ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
38	Tuner Unit		



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	38V.AC	0V.	-1.6V.DC	0V.	87V.DC	26V.AC	62V.DC
2	12SA7GT	0V.	26V.AC	87V.DC	87V.DC	-6.7V.DC	0V.	13V.AC	-.7V.DC
3	12SK7GT	0V.	52V.AC	0V.	-1.3V.DC	0V.	87V.DC	38V.AC	87V.DC
4	12SQ7GT	0V.	-1.1V.DC	0V.	-.8V.DC	-1.3V.DC	57V.DC	13V.AC	0V.
5	35L6GT	123V.DC	87V.AC	115V.DC	87V.DC	0V.	0V.	52V.AC	4.7V.DC
6	35Z5GT	0V.	117V.AC	113V.AC	0V.	113V.AC	0V.	87V.AC	123V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0Ω	33Ω	0Ω	2 MEG.	0Ω	80KΩ	23Ω	84KΩ
2	12SA7GT	0Ω	23Ω	80KΩ	80KΩ	18KΩ	.2Ω	12Ω	520KΩ
3	12SK7GT	0Ω	43Ω	0Ω	2 MEG.	0Ω	80KΩ	33Ω	80KΩ
4	12SQ7GT	0Ω	10MEG.	0Ω	250KΩ	2 MEG.	330KΩ	12Ω	0Ω
5	35L6GT	80KΩ	72Ω	80KΩ	80KΩ	450KΩ	INF.	43Ω	130Ω
6	35Z5GT	INF.	96Ω	95Ω	0Ω	95Ω	0Ω	72Ω	80KΩ

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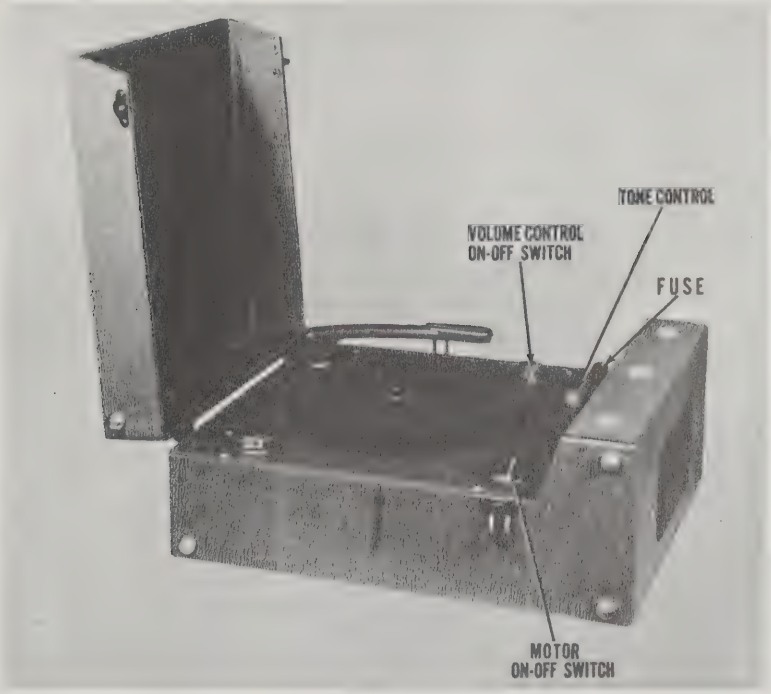
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4711-4

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



20TH CENTURY
MODEL 200

20TH CENTURY
MODEL 200

20th CENTURY MODEL 200

TRADE NAME	20th Century, Model 200
MANUFACTURER	Electronic Devices Co., 601 W. 26th St., New York, N.Y.
TYPE SET	AC-DC Operated Phonograph with Inverter for Motor on DC Operation
TUBES (THREE)	Types, 12SQ7GT Audio Amp., 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC RATING .250 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7	0V.	.9V. DC	1.7V. DC	0V.	0V.	48V. DC	12V. AC	0V.
2	50L6GT	0V.	12V. AC	127V. DC	125V. DC	0V.	0V.	62V. AC	6V. DC
3	35Z5GT	0V.	98V. AC	90V. AC	0V.	117V. AC	0V.	62V. AC	138V. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7	0Ω	95 KΩ	10 KΩ	INF.	INF.	520 KΩ	11Ω	0Ω
2	50L6GT	0Ω	11Ω	60 KΩ	60 KΩ	450 KΩ	INF.	52Ω	90Ω
3	35Z5GT	INF.	82Ω	77Ω	INF.	200Ω	INF.	52Ω	60 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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SET #21 DATE 7/47 FOLDER #4711-5

PARTS LIST AND DESCRIPTIONS

20TH CENTURY
MODEL 15C

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: 20th CENTURY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	A[illegible] Amp.		12SA7GT	8Q	
2	Power Output		50L6GT	7AC	
3	Rectifier		35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: 20th CENTURY PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	50	150		BRL3515	2N520	M-5030-150	TA-530	PRSA150-50-30	Filter - Red
B	30	150						"	- Green
5	10	50		BR105	TC32	M-10-50	TA-510	PRS50-10	Cath. Bypass
6	.5	200		DT4P5	TP430	S-4-5	TC-5	484-.5	Line Isolation
7	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Output Plate Bypass
8	.02	400		DT4S2	TP423	S-4-02	TC-12	484-02	Audio Coupling
9	.005	400		DT6D5	TP408	S-6-005	TC-25	484-005	Tone Compensation
10	.5	150							AC Coupling
11	.5	150							" "
12	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Hash Filter
13	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	" "
14	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	" "
15	.002	600		DT6D2	TP405	S-6-002	TC-22	684-002	" "
16	.1	400		DT4P1	TP428	S-4-1	TC-1	484-.1	" "
17	.5	200							" "
18	.5	200							" "
19	.5	200							" "
20	.5	200							" "
21	.5	200							" "
22	.5	200							" "
23	.5	200							" "
24	.5	200							" "

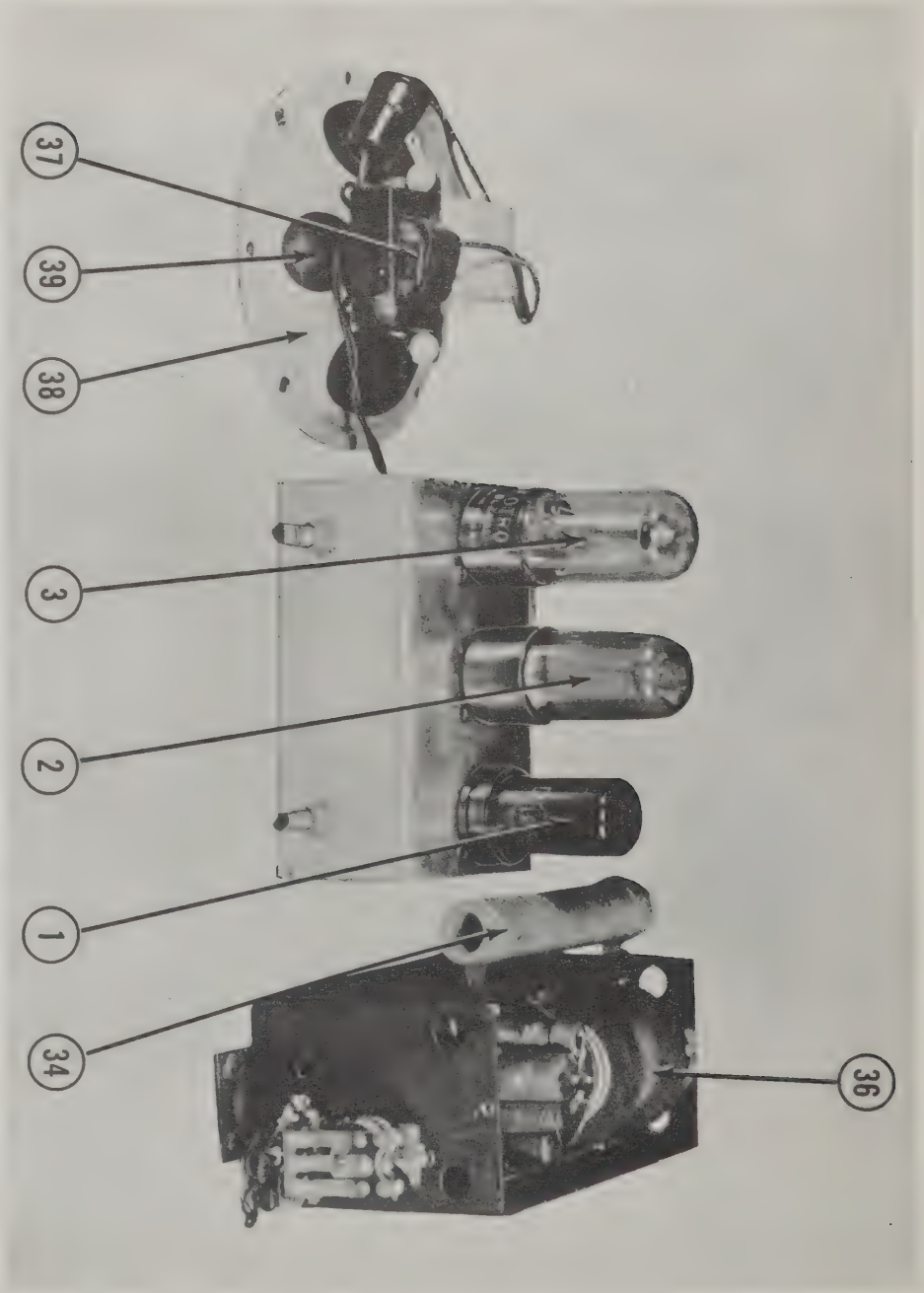
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: 20th CENTURY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 25A per instructions
C	Switch			M26	41	SW-A	" " " " "
26A	2 Meg.	1		MR55	D13-139	M-66-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 26A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: 20th CENTURY PART No.	IRC PART No.	IDENTIFICATION CODES
27	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AF Grid
28	10KΩ	½		BTS-10K	Br.-Blk.-Or. AF Cathode
29	470KΩ	1		BTA-470K	Yl.-Vi.-Yl. AF Plate Load
30	470KΩ	1		BTA-470K	Yl.-Vi.-Yl. Output Grid
31	100Ω	1		BW-1-100	Br.-Blk.-Br. Output Cathode
32	4700Ω	1		BTA-4700	Yl.-Vi.-Red Filter
33	2200Ω			AB-2250	Hash Suppression
34	3Ω				" "
35	10KΩ	½		BTS-10K	Br.-Blk.-Or. " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA 20th CENTURY PART No.	REPLACEMENT DATA MALLORY PART No.	REPLACEMENT DATA RADIART PART No.	INSTALLATION NOTES
36	Synchro	110	60~				

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA 20th CENTURY PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.		INSTALLATION NOTES
37	[illegible]	[illegible]	180Ω	.7Ω		A-3[illegible]	T-[illegible]		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA 20th CENTURY PART No.	REPLACEMENT DATA JENSEN PART No.		INSTALLATION NOTES
38	FIELD IMP.	VC IMP.		ST-1 [illegible]		
	FIELD	3.0W		Mod. P5-X		
39	CONE DIA.	VC DIA.				
	4-3/4"	1.5"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

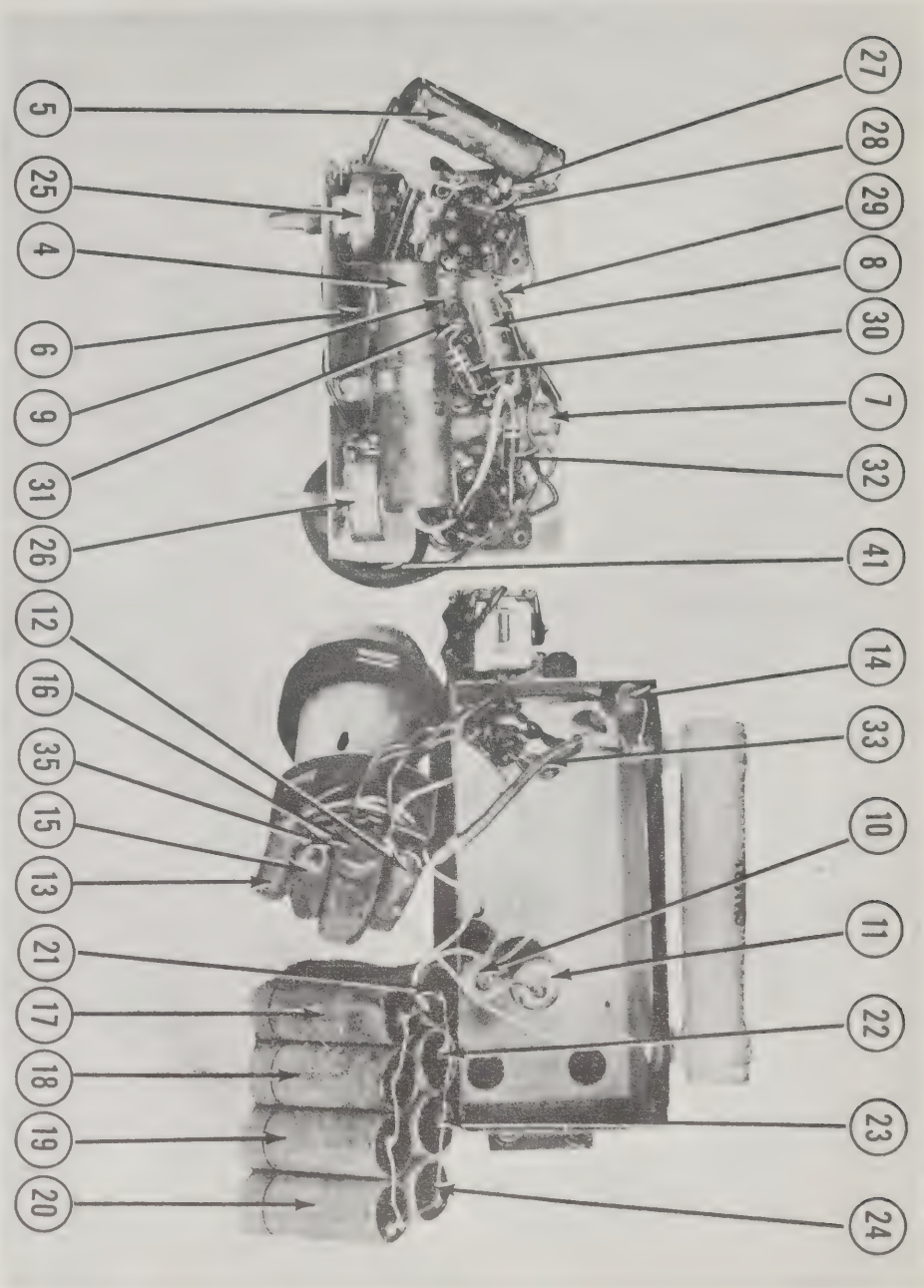
MISCELLANEOUS

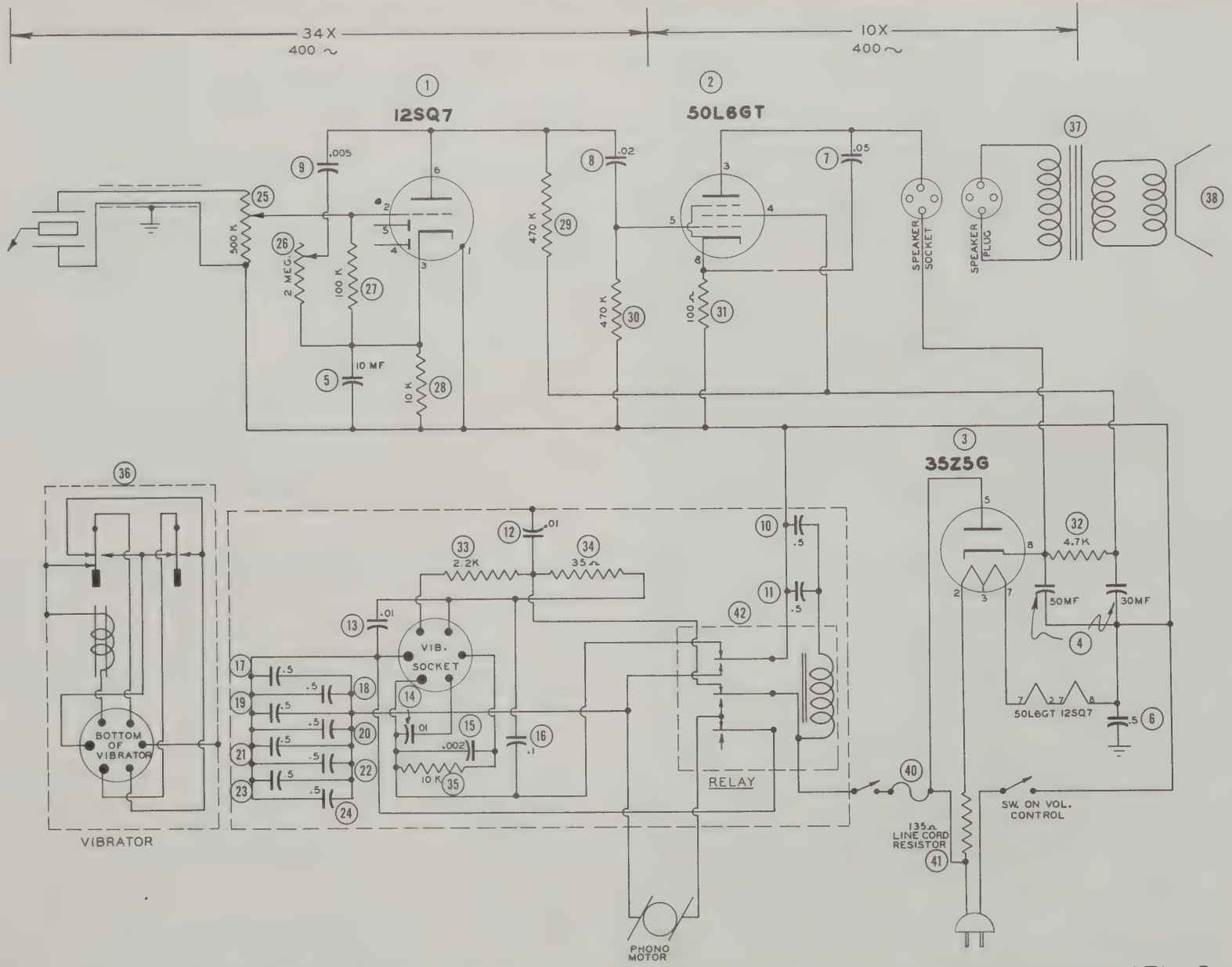
ITEM No.	PART NAME	20th CENTURY PART No.	NOTES
40	Fuse		3 Amp.
41	Line Cord		135Ω
42	Relay		3 PDT AC
	Crystal Cartridge		ASTATIC Type L-70-A

DISASSEMBLY INSTRUCTIONS

1. Remove two screws and washers from speaker back panel. Remove panel.
2. Remove four screws and washers from motor-board. Tilt motor-board up on end.
3. Remove the volume and tone control set screw type knobs.
4. Remove the two nuts holding the controls to the motor-board. Remove the tone and volume control from plate.
5. Disconnect the speaker plug.
6. Unsolder the phono-motor lead from terminal.
7. Unsolder lead from the fuse.
8. Remove the [illegible] from the power inverter unit to the motor board.
9. Unsolder the phono-motor lead from the relay on the power inverter unit.
10. Unsolder black lead from the relay.
11. Unsolder red lead from the relay.
12. Remove the [illegible] power inverter unit from chassis.
13. Remove the four nuts and washers from the [illegible]. Remove speaker.
14. Remove two [illegible] screws holding cover of power inverter unit. Remove cover.

CHASSIS—BOTTOM VIEW





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20TH CENTURY
MODEL 300

20TH CENTURY
MODEL 300

20th CENTURY MODEL 300

TRADE NAME	20th Century, Model 300
MANUFACTURER	Electronic Devices Co., 601 W. 26th St., New York, N.Y.
TYPE SET	AC-DC Operated Phonograph with Inverter for Motor on DC operation.
TUBES (THREE)	Types, 12SQ7GT Audio Amp., 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC RATING .230 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7	0V.	.9V.DC	1.7V.DC	0V.	0V.	48V.DC	12V. AC	0V.
2	50L6GT	0V.	12V. AC	127V.DC	125V.DC	0V.	0V.	62V. AC	6V.DC
3	35Z5GT	0V.	98V. AC	90V. AC	0V.	117V. AC	0V.	62V. AC	138V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7	0Ω	95 KΩ	10 KΩ	INF.	INF.	520 KΩ	11Ω	0Ω
2	50L6GT	0Ω	11Ω	60 KΩ	60 KΩ	460 KΩ	INF.	52Ω	90Ω
3	35Z5GT	INF.	82Ω	77Ω	INF.	200Ω	INF.	52Ω	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: 20th CENTURY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Audio Amp.	12SQ7GT	12SQ7GT	7AC	
2	Power Output	50L6GT	50L6GT	7AC	
3	Rectifier	35Z5GT	35Z5GT	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: 20th CENTURY PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	50	150		SR3C15	2N52C	M-5050-150	TA-52C	TRSA15A-50-30	Filter - Red
B	30	150							" - Blue
5	.5	200		DT4P5	TP430	S-4-5	TC-5	474-.5	Line Isolation
6	.05	400		DT4S5	TP426	S-4-05	TC-16	474-05	Output Plate Bypass
7	.02	400		DT4S2	TP423	S-4-02	TC-12	474-02	Audio Coupling
8	.005	400		DT6D5	TP408	S-6-005	TC-25	464-005	Tone Compensation
9	.5	200							AC Coupling
10	.5	200							" "
11	.01	600		DT6S1	TP41C	S-6-01	TC-11	664-01	Hash Filter
12	.05	200		DT4S5	TP426	S-4-05	TC-16	474-05	" "
13	.1	200		DT4P1	TP428	S-4-1	TC-1	474-.1	" "
14	.5	200							" "
15	.5	200							" "
16	.5	200							" "
17	.5	200							" "
18	.5	200							" "

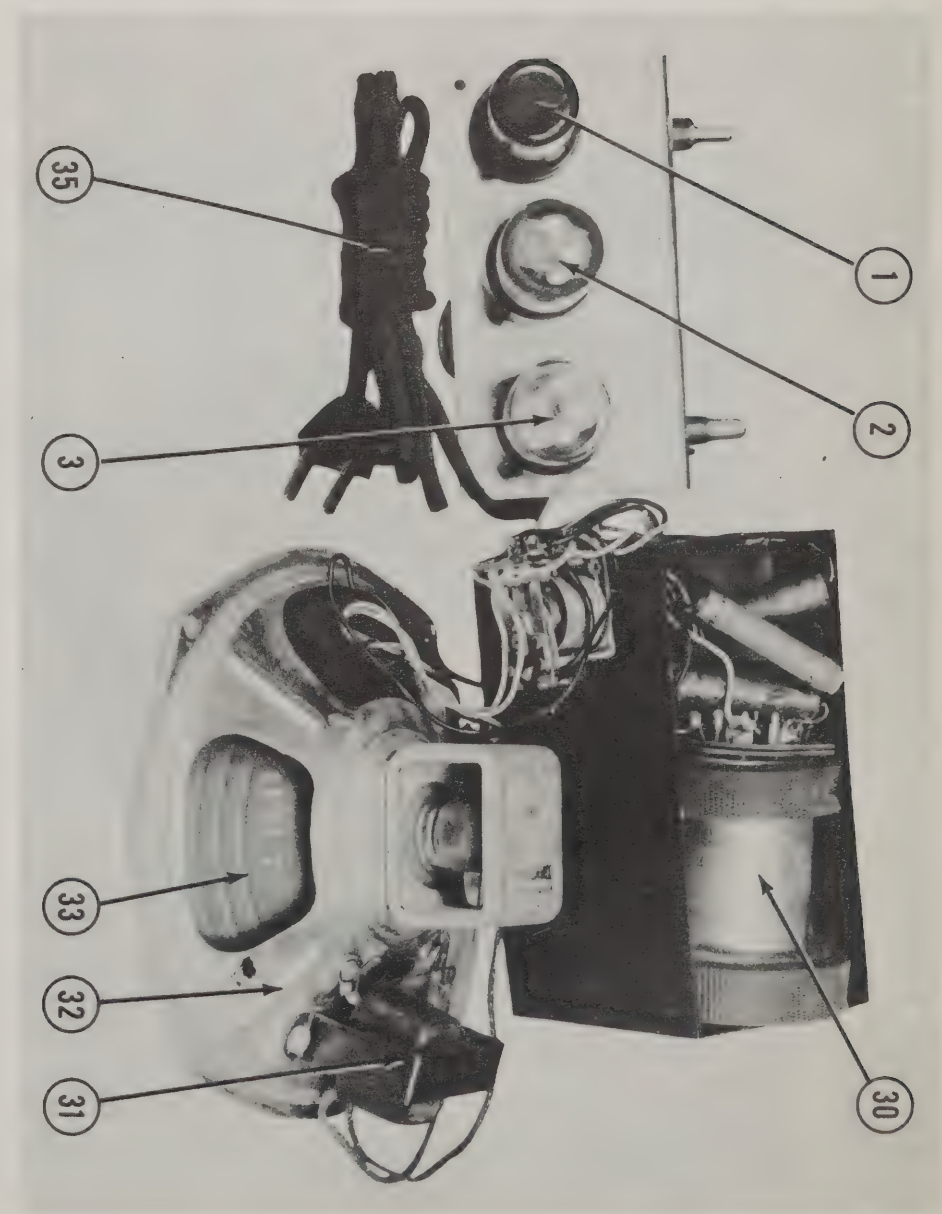
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: 20th CENTURY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch			M26	41	SW-A	" " " " "
20A	2MMeg.	1		MR55	D13-139	M-66-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 20A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: 20th CENTURY PART No.	IRC PART No.	IDENTIFICATION CODES
21	50KΩ	½		BTS-47K	Grn.-Blk.-Or. AF Grid
22	50KΩ	½		BTS-47K	Grn.-Blk.-Or. AF Grid
23	1MΩ	½		BTS-10K	Br.-Blk.-Or. AF Cathode
24	470KΩ	1		BTA-470K	Yl.-Vi.-Yl. AF Plate Load
25	470KΩ	1		BTA-470K	Yl.-Vi.-Yl. Output Grid
26	100Ω	1		BW-1-100	Br.-Blk.-Br. Output Cathode
27	4700Ω	1		BTA-4700	Yl.-Vi.-Red Filter
28	2200Ω			AB-2250	Hash Suppression
29	10Ω			AB-1C	" "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				20th CENTURY PART No.	MALLORY PART No.	RADIART PART No.	
30	Synchronous	110	60 ∿				

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		20th CENTURY PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
31	1900Ω	3.2Ω	220Ω	.4Ω		A-3876	T22945		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			20th CENTURY PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-108		
32	PM	3.2Ω		Mod. P6-X		
	CONE DIA.	VC DIA.				
33	6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

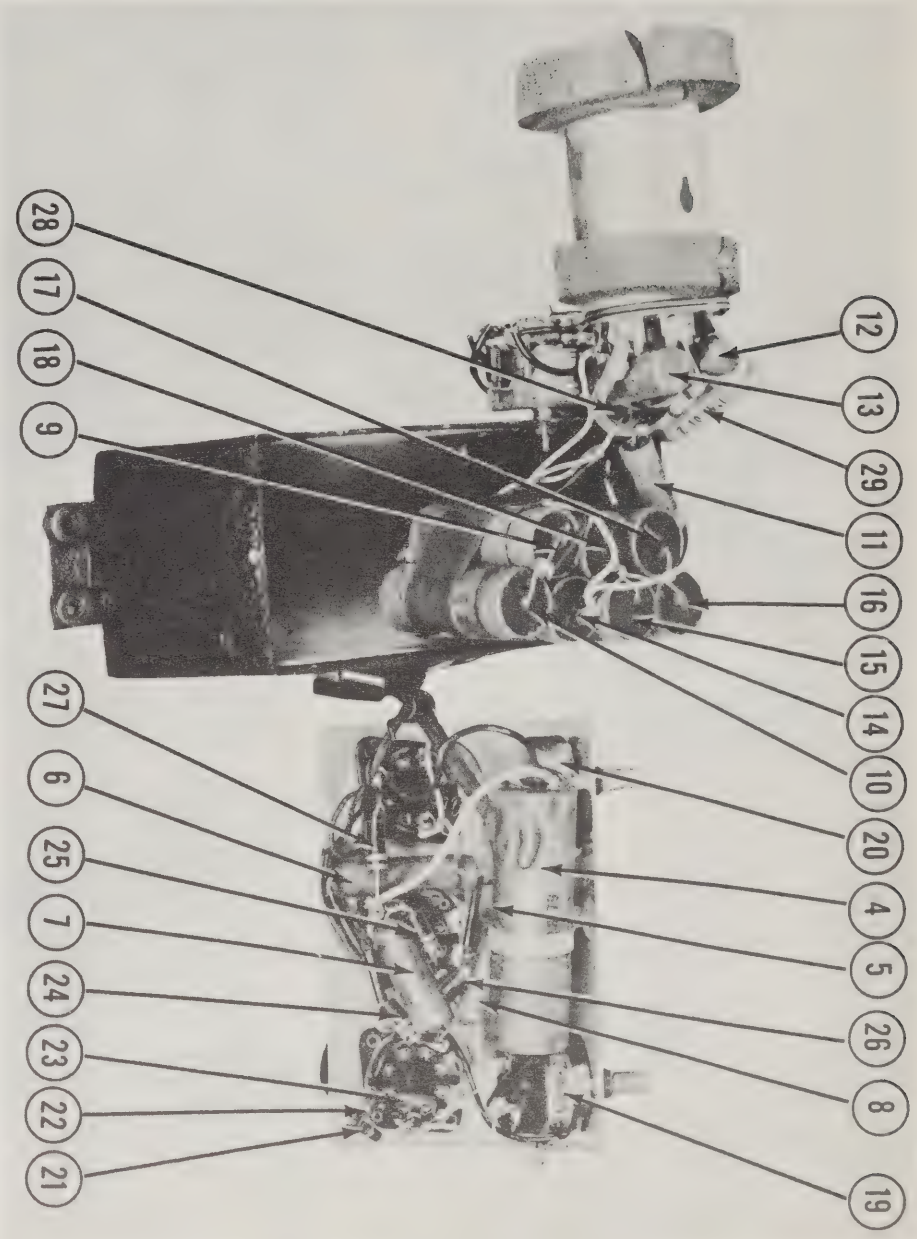
MISCELLANEOUS

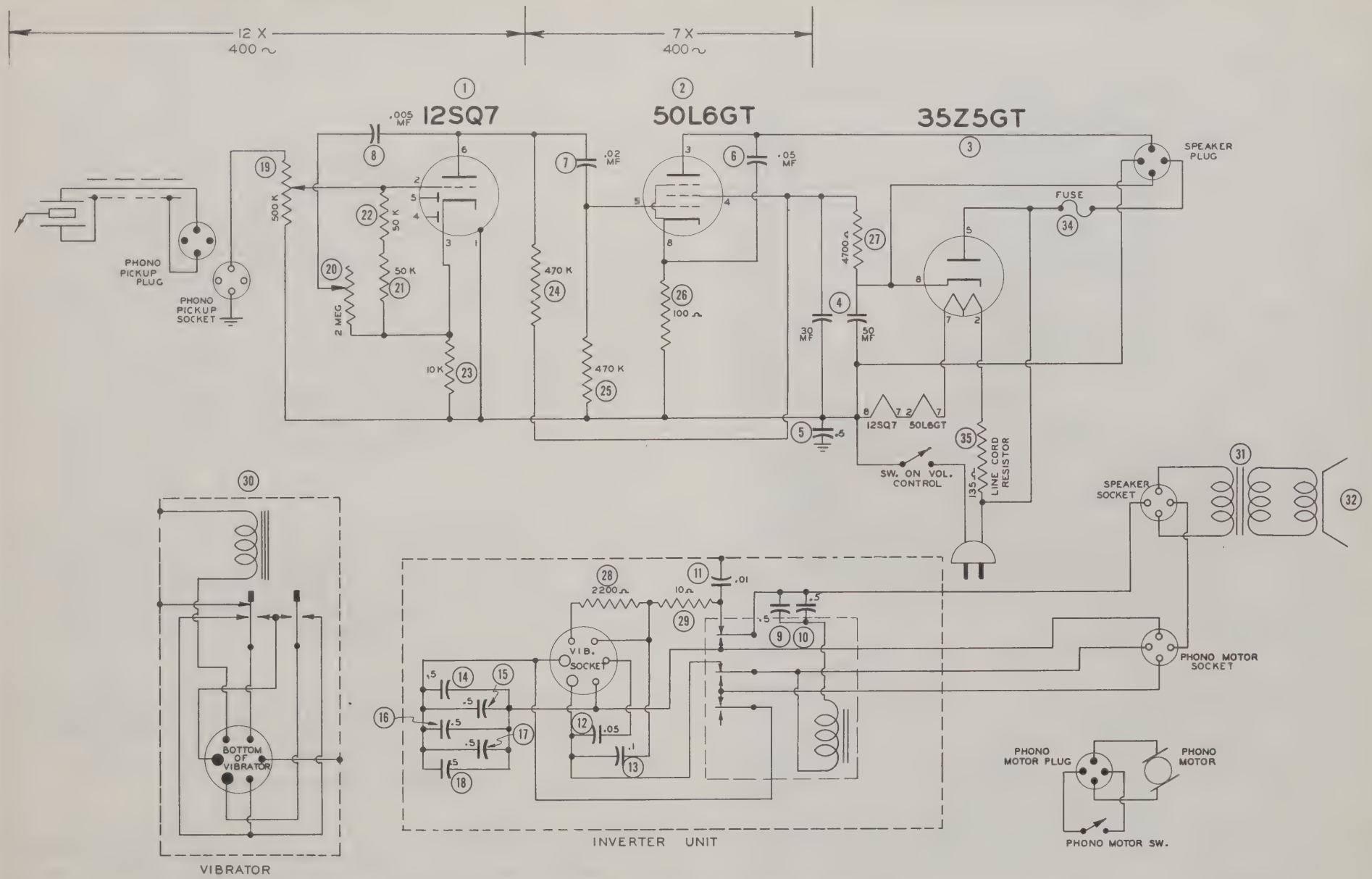
ITEM No.	PART NAME	20th CENTURY PART No.	NOTES
34	Fuse		3 Amp.
35	Line Cord		135Ω
	Crystal Cartridge		ASTATIC Type L-70-A
36	Relay		3PDT AC

DISASSEMBLY INSTRUCTIONS

1. Remove five wood screws from motor board.
2. Remove four wood screws and washers from chassis panel board.
3. Disconnect the phono-motor plug.
4. Disconnect the phono-pickup plug.
5. Disconnect the speaker receptacle from speaker plug.
6. Remove chassis panel board and phono-motor from cabinet.
7. Remove the two hex head nuts and washers holding speaker to cabinet.
8. Remove four wood screws and washers holding power converter unit to cabinet. Remove power converter and speaker from cabinet.

CHASSIS—BOTTOM VIEW





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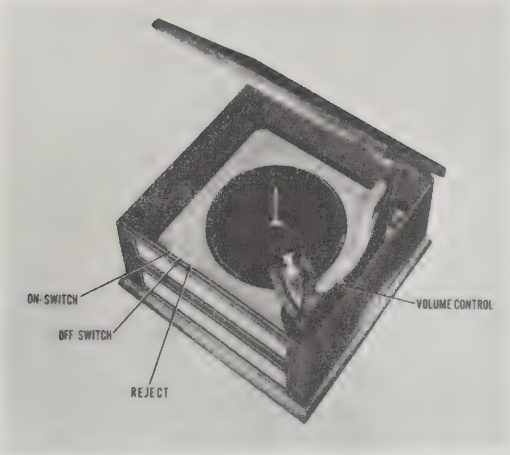
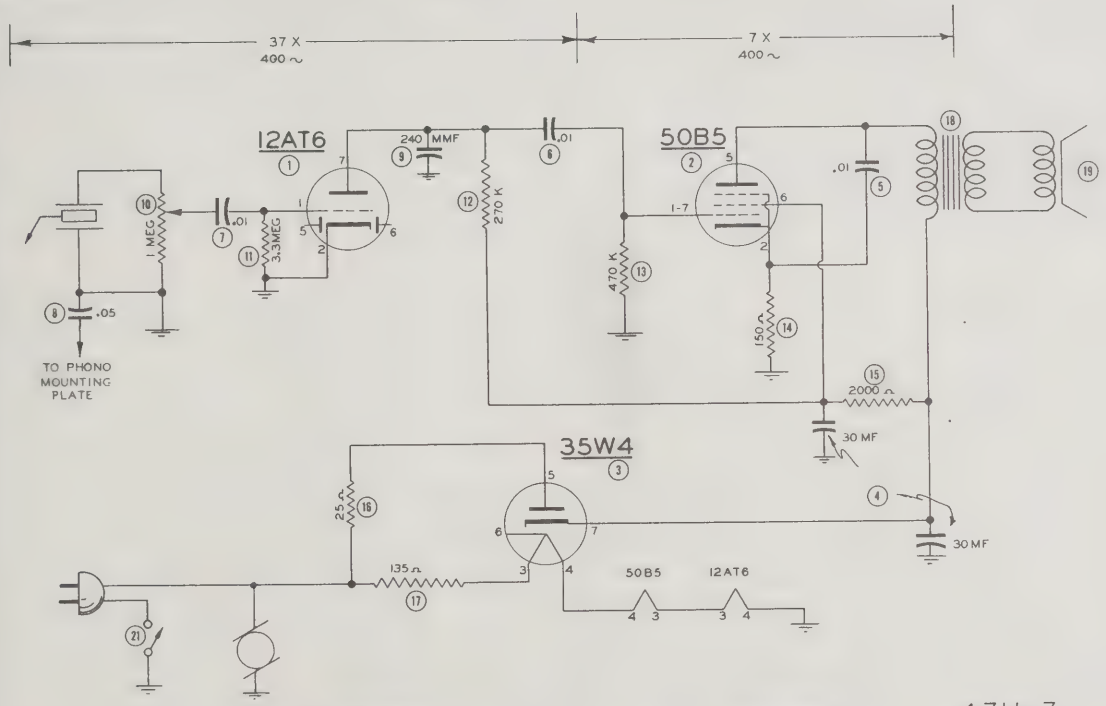


CONCORD MODEL 7R3APW

TRADE NAME	Concord, Model 6R3ARC, 7R3APW
SUPPLIER	Concord Radio Corp., 901 W. Jackson Blvd., Chicago, Ill.
TYPE SET	AC Operated Phonograph with 3 Tube Amplifier & Speaker
TUBES (THREE)	Types, 12AT6 AF Amp., 50B5 Power Output, 35W4 Rectifier.



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12AT6	0V.	0V.	12V.AC	0V.	0V.	0V.	70V.DC
2	50B5	0V.	8.6V.DC	12V.AC	62V.AC	12.5V.DC	116V.DC	0V.
3	35W4	117V.AC	0V.	95V.AC	62V.AC	115V.AC	70V.AC	130V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12AT6	3.5MEG	0 Ω	11 Ω	0 Ω	INF.	INF.	320 KΩ
2	50B5	450 KΩ	180 Ω	11 Ω	80 Ω	50 KΩ	50 KΩ	450 KΩ
3	35W4	230 Ω	INF.	90 Ω	80 Ω	260 Ω	68 Ω	68 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CONCORD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	12AT6	12AT6	7BT	
2	Power Output	50B5	50B5	7BZ	
3	Rectifier	35W4	35W4	5BC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CONCORD PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	30	150		BRL3315	2N513	M-2X30-150	TA-330	PRSA150-30-30	Filter
B	30	150							"
5	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	Output Plate Bypass
6	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	Audio Coupling
7	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	" "
8	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Phono Isolation
9	250	500		5W5T25	MC250	M0.5-325	1HM-325	1465-00025	Audio Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONCORD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
10A	1 Meg.	1		MR53	D13-137	M-83-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 10A per instruction

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONCORD PART No.	IRC PART No.	IDENTIFICATION CODES
11	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AF Grid
12	270KΩ	½		BTS-270K	Red-Vi.-Yl. AF Plate Load
13	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
14	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
15	2000Ω	½		BTS-2000	Red-Blk.-Red Filter
16	27Ω	½		BW-½-27	Red-Grn.-Blk. Rectifier Ballast
17	135Ω	10		ABA-135	Series Filament-See Note

Note-On IRC replacement set slider at 135Ω from one end.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CONCORD PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
18	2200Ω	3.1Ω	145Ω	.5Ω		A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original brackets.

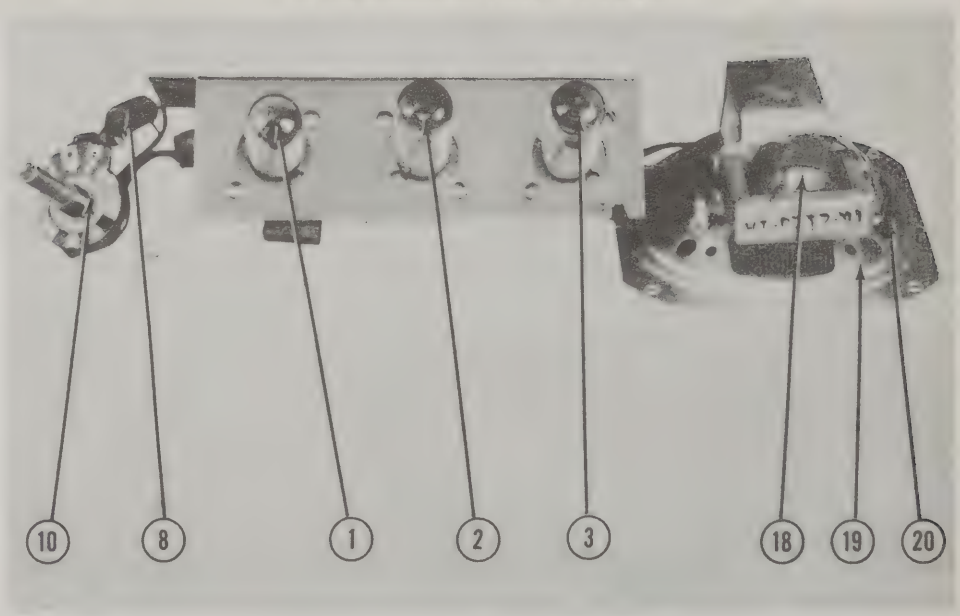
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: CONCORD PART No.	JENSEN PART No.		INSTALLATION NOTES
19	FIELD	VC IMP.		ST-113		
	PM	3.1Ω		Mod. P4-X		
20	CONE DIA.	VC DIA.				
	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

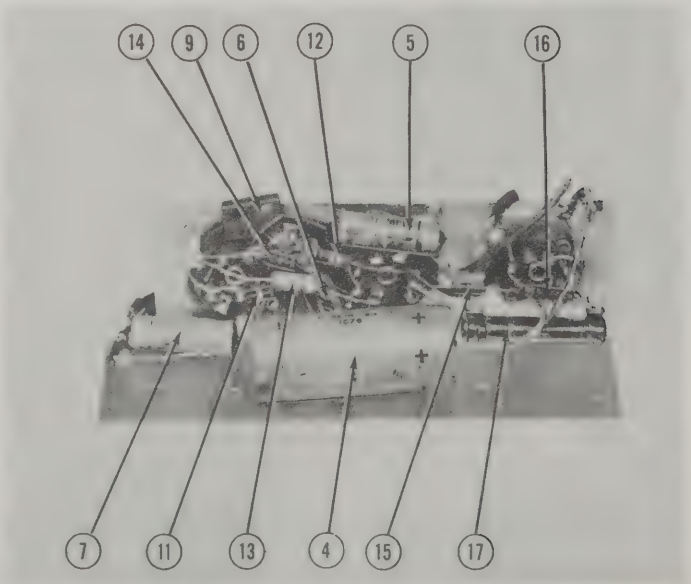
MISCELLANEOUS

ITEM No.	PART NAME	CONCORD PART No.	NOTES
21	Switch		On-Off

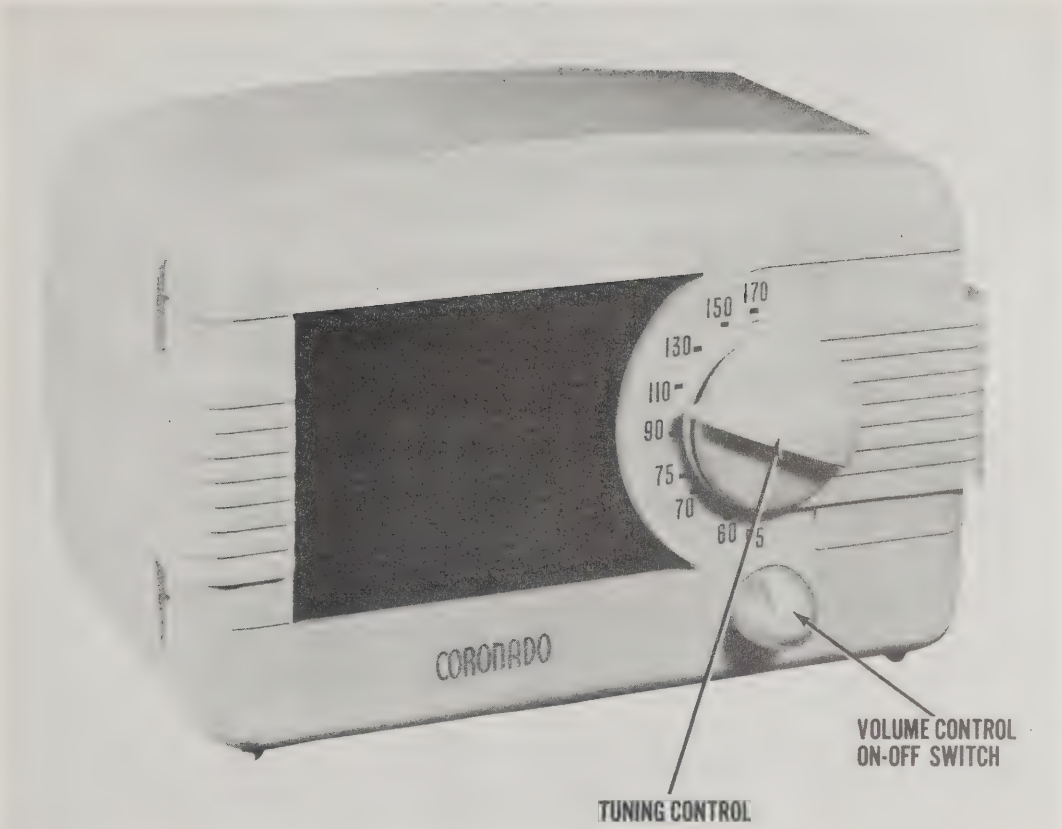
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



CORONADO
MODEL 43-8178



CORONADO
MODEL 43-8178

CORONADO MODEL 43-8178

TRADE NAME	Coronado, Model 43-8178
SUPPLIER	"Coronado", Minneapolis, Minn. & Los Angeles, Calif.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1700KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to stator of rear section of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200 MMF.	High side to ext. ant. Low side to chassis.	1700KC	"	"	A5	Adjust for maximum output.
3	200 MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

CORONADO MODEL 43-3178

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CORONADO PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	CORONADO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	40	150		BRD4415	2N511	M-2x40-150	TA-440	PRSA150-40-40	Filter - Red
B	40	150							" - Blue
7	.05	600		DT6S5	TP415	S-6-05	TC-15	684-05	Line Filter
8	.05	600		DT6S5	TP415	S-6-05	TC-15	684-05	RF Bypass Pwr. Supp.
9	.02	600		DT6S2	TP412	S-6-02	TC-12	684-02	Output Plate Bypass
10	.01	600		DT6S1	TP415	S-6-01	TC-11	684-01	Audio Coupling
11	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	" "
12	.05	600		DT6S5	TP415	S-6-05	TC-15	684-05	AVC Filter
13	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	Ext. Ant. Coupling
14	.1	400		DT4P1	TP428	S-4-1	TC-1	484-.1	Line Isolation *
15	330	500		5W5T3	MC241	M0.5-333	1FM-33	1468-0003	Audio Plate Bypass
16	330	500		5W5T3	MC241	M0.5-333	1FM-33	1468-0003	Diode Filter
36	330	500		5W5T3	MC241	M0.5-333	1FM-33	1468-0003	Osc. Grid Capacitor†

*Used in Underwriters approved models.
†Not used in all models.

CONTROLS

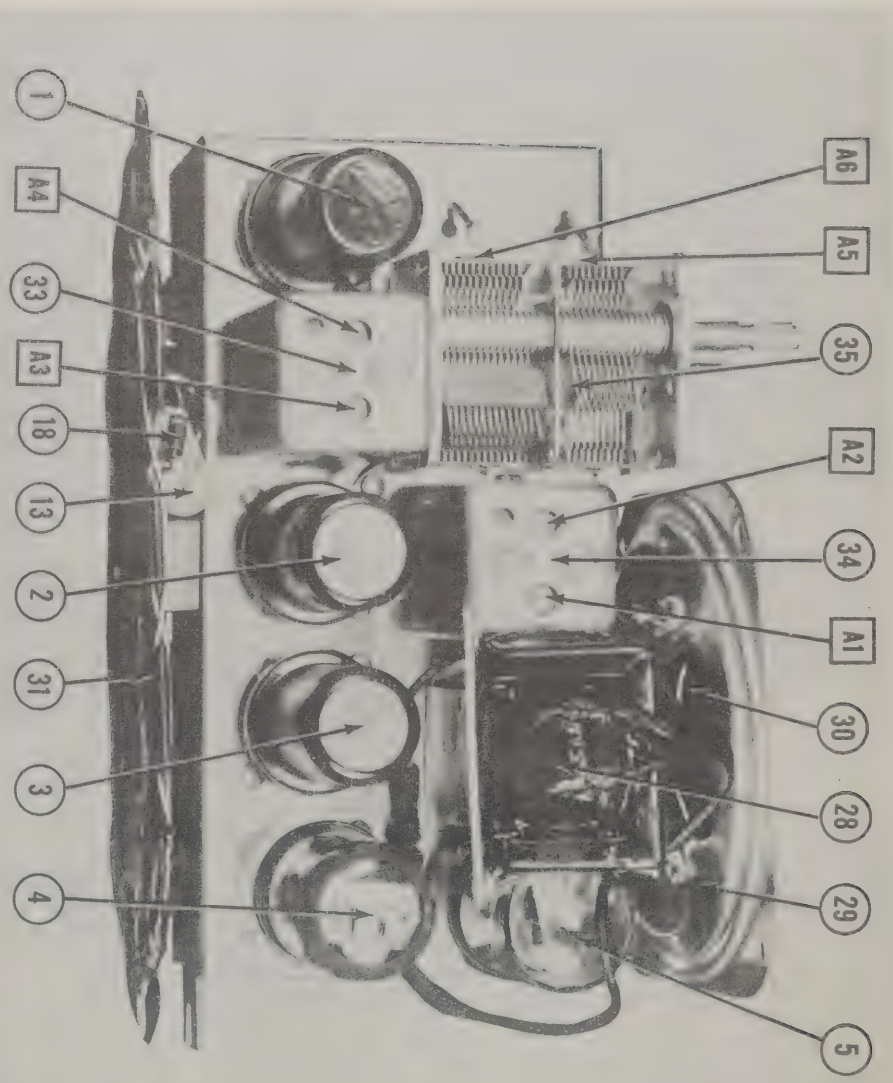
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	CORONADO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 17A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	CORONADO PART No.	IRC PART No.	
18	470Ω	½		BTS-470	Yl.-Vi.-Br. Antenna Loading
19	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
20	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
21	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
22	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
25	1500Ω	2		BT-2-1500	Br.-Grn.-Red Filter
26	18Ω	1		BW-1-18	Br.-Gray-Blk. Rectifier Ballast
27	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Line Isolation-See Note

Note-Used in Underwriters approved models only.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CORONADO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
28	3000Ω	3.9Ω	150Ω	.4Ω		A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CORONADO PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-113 ‡		‡Fabricate New mounting bracket.
29	PM	3.9Ω		Mod. P4-X		
	CONE DIA.	VC DIA.				
30	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

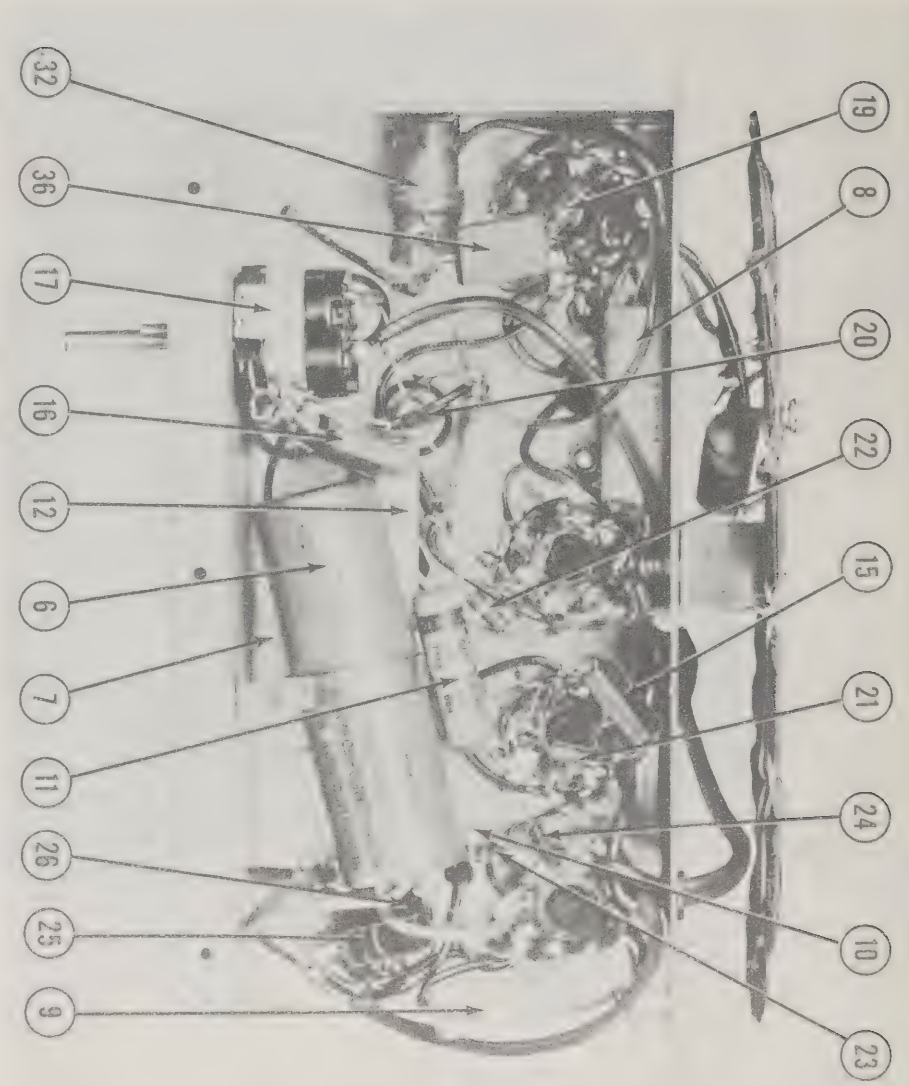
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	CORONADO PART No.	MEISSNER PART No.	
31	Loop Ant.	.1Ω	1.2Ω			
32	Osc. Coil		10Ω		14-1040	
33	Input IF	18Ω	19Ω		16-6658	
34	Output IF	30Ω	30Ω		16-6660	

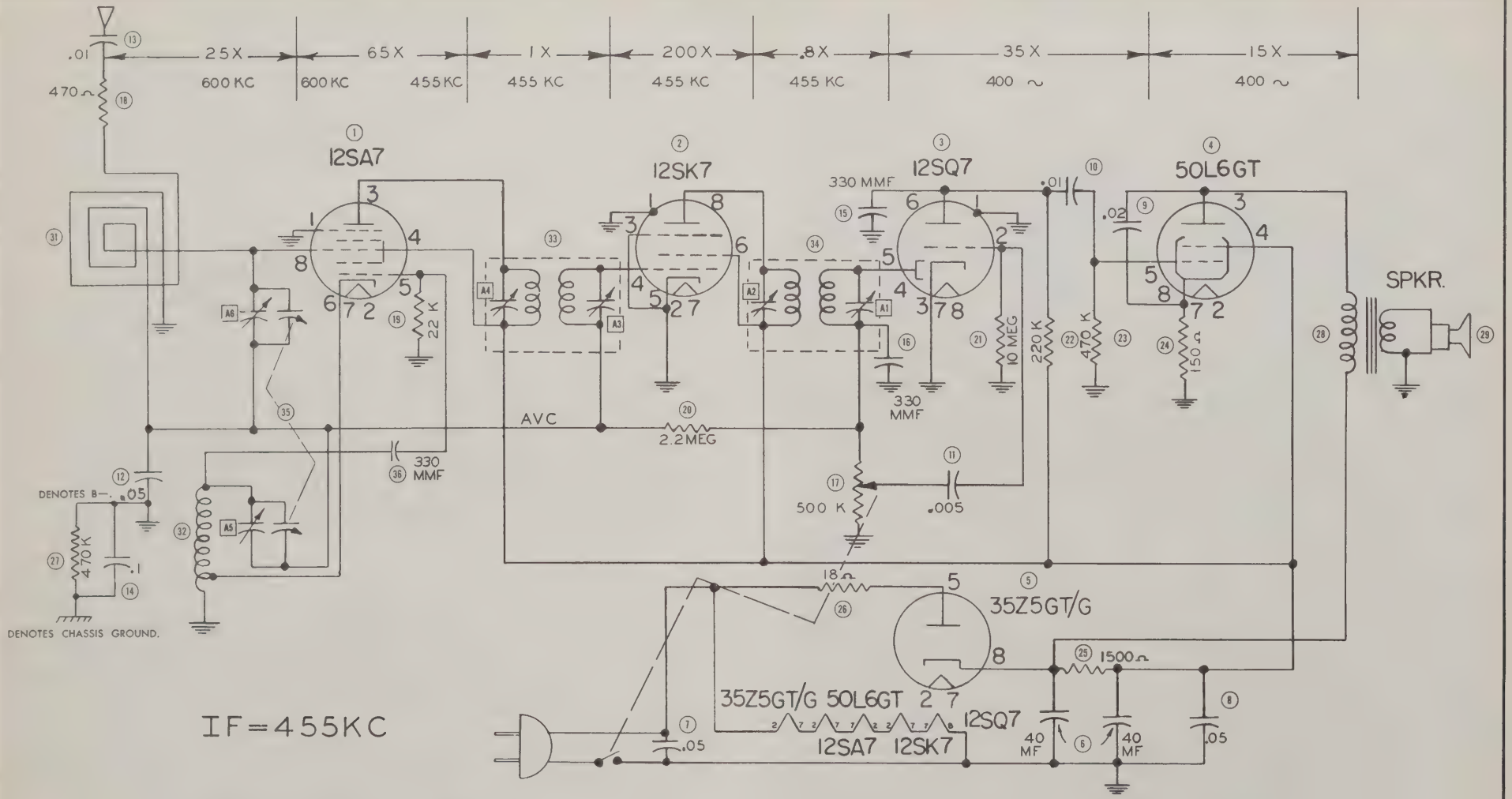
MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
35	2 Gang Var. Cap		26-474 MMF, 32-194 MMF

CHASSIS—BOTTOM VIEW



CORONADO
MODEL 43-9178



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	23 V.AC	92 V.DC	92 V.DC	-1.9V.DC	0V.	34 V.AC	-.1 V.DC
2	12SK7	0V.	23 V.AC	0V.	-.1 V.DC	0V.	92 V.DC	12 V.AC	92 V.DC
3	12SQ7	0V.	-.5 V.DC	0V.	-.4 V.DC	-.4 V.DC	58 V.DC	12 V.AC	0V.
4	50L6GT	0V.	62 V.AC	125 V.DC	92 V.DC	0V.	0V.	34 V.AC	4.8 V.DC
5	35Z5GT	0V.	117 V.AC	110 V.AC	0V.	115 V.AC	0V.	62 V.AC	130 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0Ω	23Ω	100KΩ	100KΩ	22KΩ	.6Ω	34Ω	2.8MEG
2	12SK7	0Ω	23Ω	0Ω	2.8MEG	0Ω	100KΩ	12Ω	100KΩ
3	12SQ7	0Ω	10 MEG	0Ω	500KΩ	500KΩ	320KΩ	12Ω	0Ω
4	50L6GT	INF.	78Ω	100KΩ	100KΩ	460KΩ	INF.	34Ω	130Ω
5	35Z5GT	INF.	108Ω	100Ω	INF.	130Ω	INF.	78Ω	100KΩ

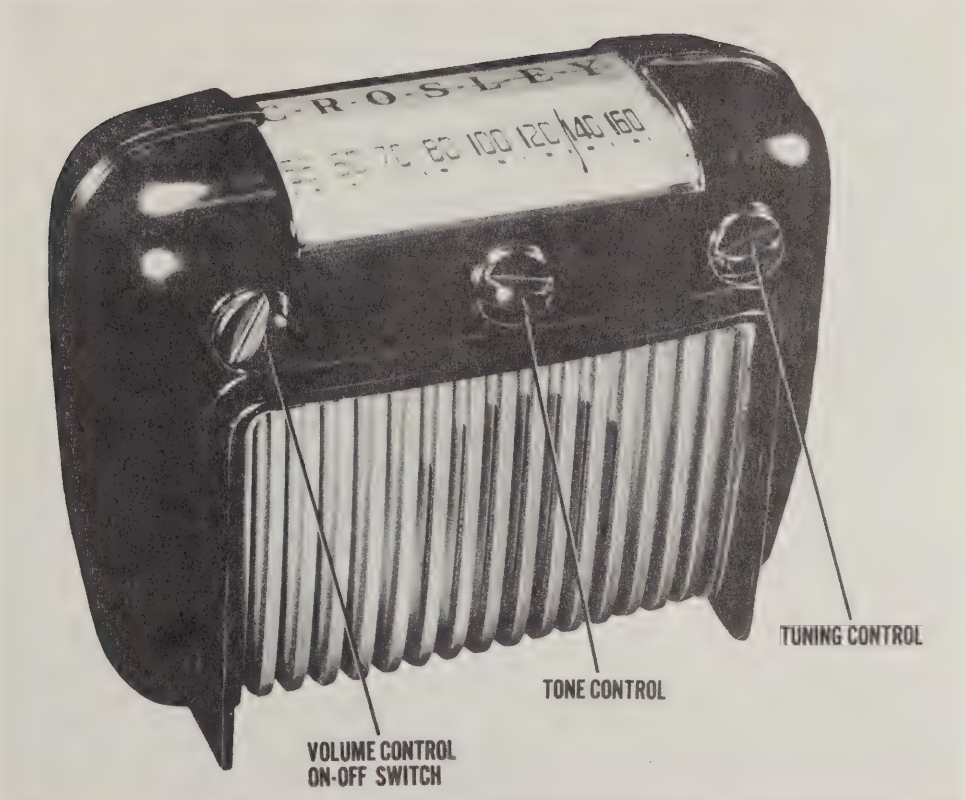
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS 4711-8

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

CROSLEY
MODEL 56 TD



CROSLEY
MODEL 56 TD

CROSLEY MODEL 56TD

TRADE NAME	Crosley, Model 56TD
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	200 MMFD	High side to ext. ant. lead. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	200 MMFD	"	1620KC	"	"	A5	" " " "
3	200 MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

CROSLEY
MODEL 58TD

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	B-136771	BRL5315C	2N520	DSB-304	TA-530		Filter - Red
B	30	150							" - Blue
C	10	25			TC22		TA-10		Cath. Bypass - Green
7	.05	600	39001-17	DT6S5	TP415	S-6-05	TC-15	684-05	Line Filter
8	.022	600	39001-80	DT6S2	TP412	S-6-02	TC-12	684-02	Output Plate Bypass
9	.022	600	39001-80	DT6S2	TP412	S-6-02	TC-12	684-02	Audio Coupling
10	.0033	600	39001-76	DT6D3	TP406	S-6-003	TC-23	684-003	" "
11	.003	600	39001-76	DT6D3	TP406	S-6-003	TC-23	684-003	Tone Compensation
12	.01	600	39001-13	DT6S1	TP410	S-6-01	TC-11	684-01	" "
13	.02	600	39001-80	DT6S2	TP412	S-6-02	TC-12	684-02	Hum Balance *
14	.05	600	39001-17	DT6S5	TP415	S-6-05	TC-15	684-05	Line Isolation
15	.022	600	39001-80	DT6S2	TP412	S-6-02	TC-12	684-02	AVC Filter
16	.00025	600	39001-73	DT6T25	TP402	S-6-00025	TC-325	684-00025	Output Grid Filter
17	50	500	B226638-53	5W5Q5	MC220	M0.5-45	1FM-45	1468-00005	Osc. Grid Capacitor

*Not used in all models.

CONTROLS

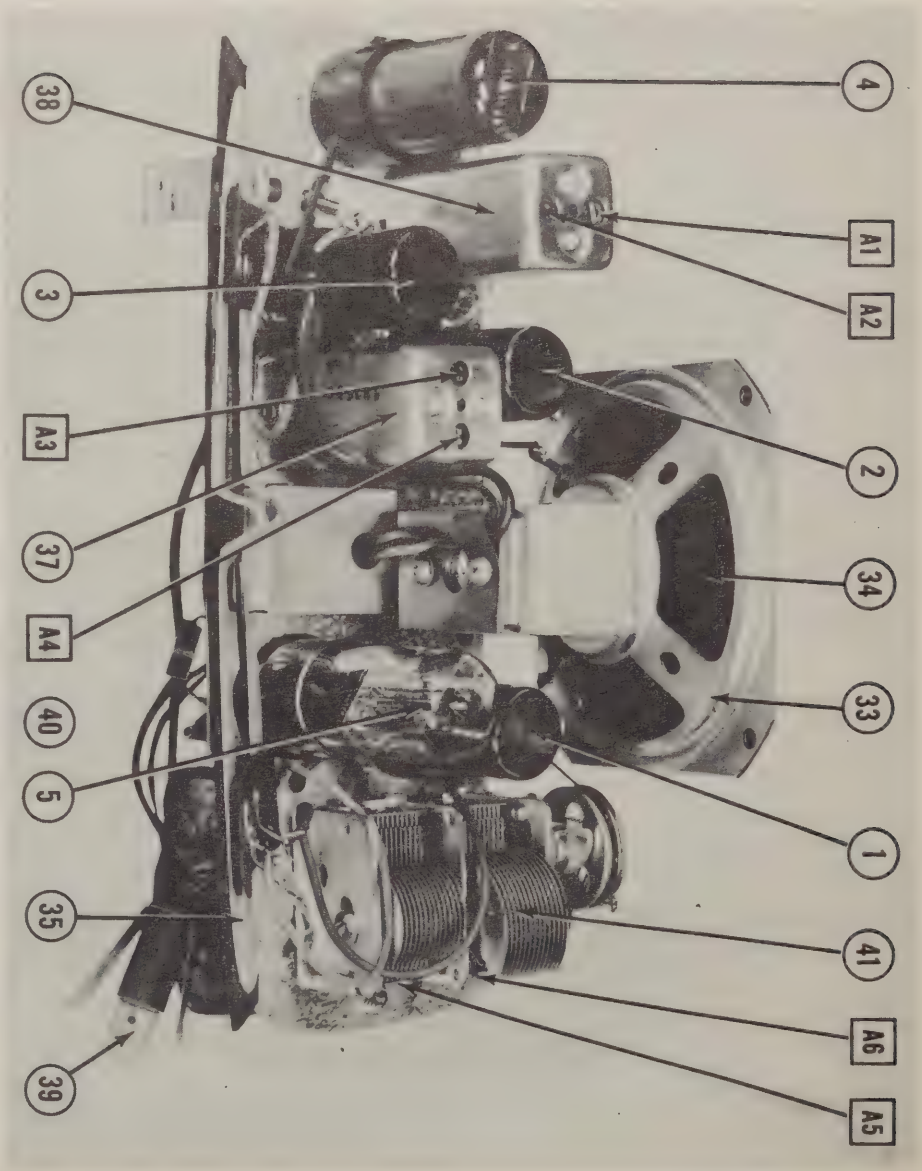
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
18A	1 Meg.	1	B-135383	TM238	D13-137X	AT-109	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 18A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
19A	2 Meg.	1	B-135892	MK403	D13-139	AM-66-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 19A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
20	15 Meg.	½	39294-38	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
21	22KΩ	½	39294-21	BTS-22K	Red-Red-Or. Oscillator Grid
22	3.3 Meg.	½	39294-34	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
23	22KΩ	½	39294-21	BTS-22K	Red-Red-Or. Tone Compensation
24	5 Meg.	½	39294-35	BTS-4.7 Meg.	Grn.-Blk.-Grn. AF Grid
25	470KΩ	½	39294-29	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
26	22KΩ	½	39294-21	BTS-22K	Red-Red-Or. Hum Balance-See Note
27	470KΩ	½	39294-29	BTS-470K	Yl.-Vi.-Yl. Output Grid
28	150Ω	½	39294-8	BW-½-150	Br.-Grn.-Br. Output Cathode
29	1200Ω	1	39015-26	BTA-1200	Br.-Red-Red Filter
30	47Ω	1	W-137367	BW-1-47	Surge Limiter
31	150Ω	½	39294-8	BW-½-150	Br.-Grn.-Br. Pilot Light Shunt

Note-Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CROSLEY	STANCOR	THORDAR'N		
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.		
32	2250Ω	3.5Ω	220Ω	.7Ω	B-135388	A-3876 †	T22S45 †		† Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CROSLEY PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
33	PM	3.5Ω	B-136767	ST-113‡		‡Drill and tap magnet frame.
	CONE DIA.	VC DIA.				
34	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

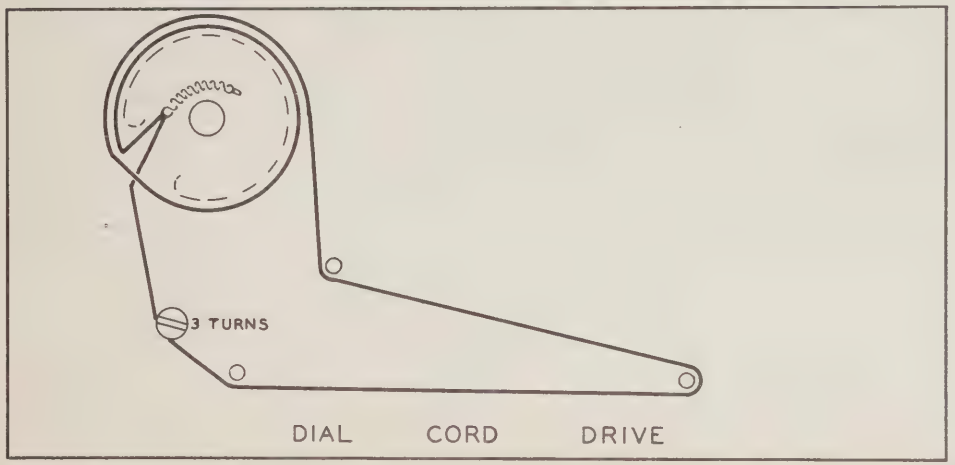
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	CROSLEY PART No.	MEISSNER PART No.	
35	Loop Ant.	.1Ω	1.2Ω	AC-136091		
36	Osc. Coil		6Ω	AW-136058	14-1040	
37	Input IF	29Ω	29Ω	AW-137656	16-6666	
38	Output IF	32Ω		AW-137657		

DIAL LIGHT

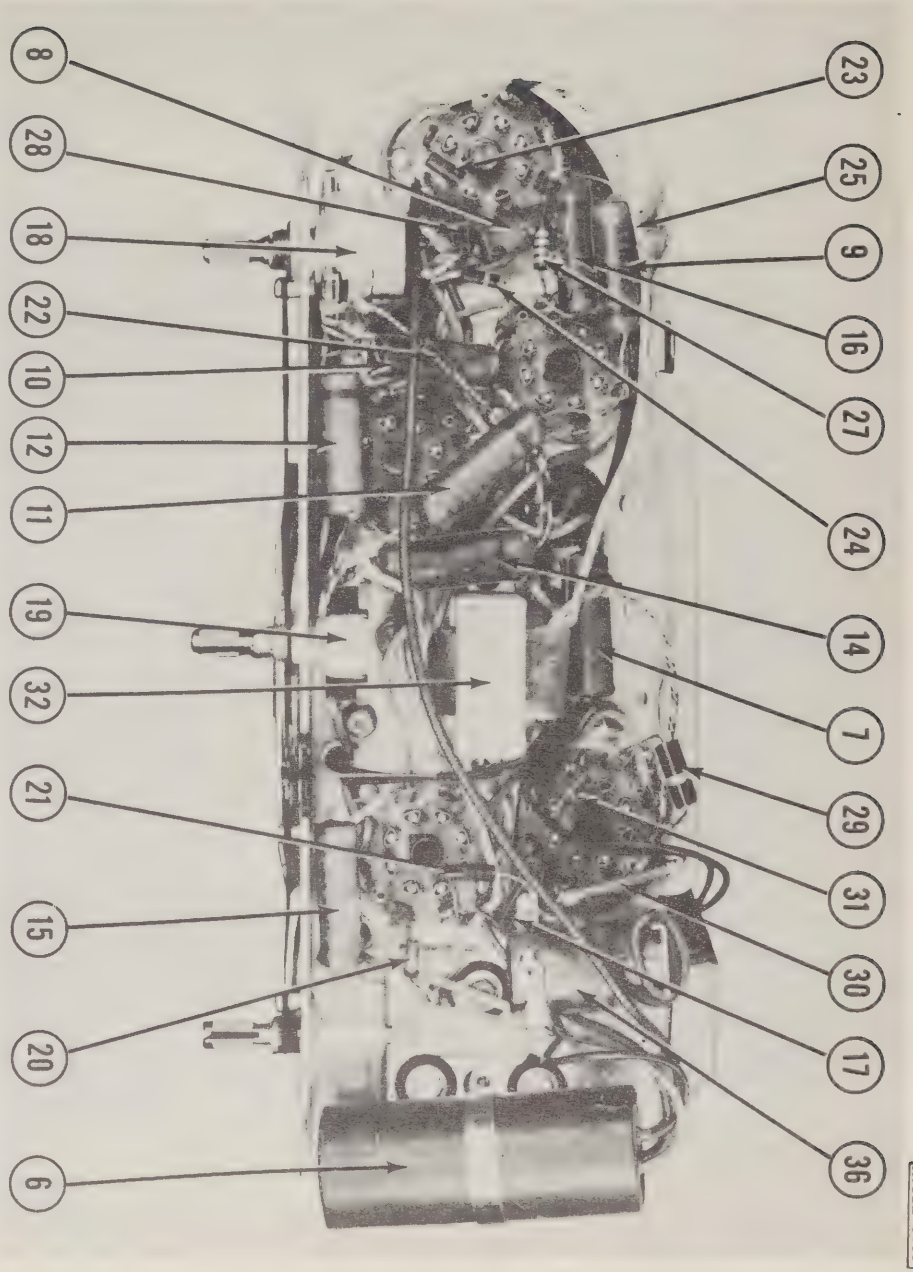
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CROSLEY PART No.		
39	Bayonet	6-8	0.15	Brown	W-48858		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	CROSLEY PART No.	NOTES
40	Interlock Switch	W-135355	
41	2 Gang Var. Cap.	B-136810	23-469 MMF, 52-289 MMF
	Dial Face	D-136828	
	Dial Lens	B-135275	
	Dial Pointer	B-134657	

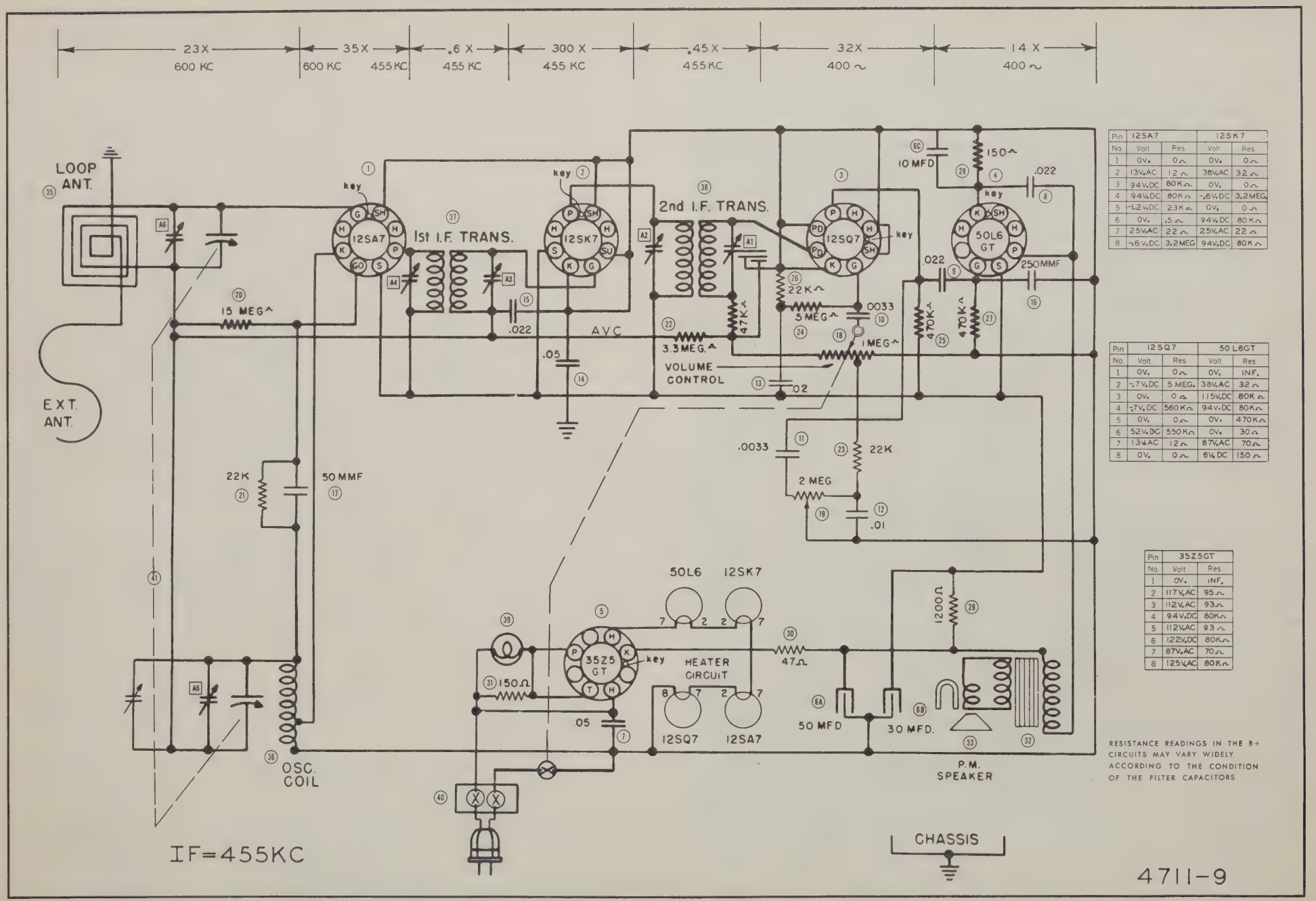


CHASSIS—BOTTOM VIEW



CROSLEY MODEL 567D

CROSLEY MODEL 567D



Pin No	12SA7 Volt	12SA7 Res	12SK7 Volt	12SK7 Res
1	0V.	0Ω	0V.	0Ω
2	13V.AC	12Ω	38V.AC	32Ω
3	94V.DC	80KΩ	0V.	0Ω
4	94V.DC	80KΩ	-.6V.DC	3.2MEG.
5	-1.2V.DC	23KΩ	0V.	0Ω
6	0V.	.5Ω	94V.DC	80KΩ
7	25V.AC	22Ω	25V.AC	22Ω
8	-6V.DC	3.2MEG	94V.DC	80KΩ

Pin No.	12SQ7 Volt.	12SQ7 Res	50L6GT Volt	50L6GT Res
1	0V.	0Ω	0V.	INF.
2	-7V.DC	5 MEG.	38V.AC	32Ω
3	0V.	0Ω	115V.DC	80KΩ
4	-7V.DC	560KΩ	94V.DC	80KΩ
5	0V.	0Ω	0V.	470KΩ
6	52V.DC	550KΩ	0V.	30Ω
7	13V.AC	12Ω	87V.AC	70Ω
8	0V.	0Ω	6V.DC	150Ω

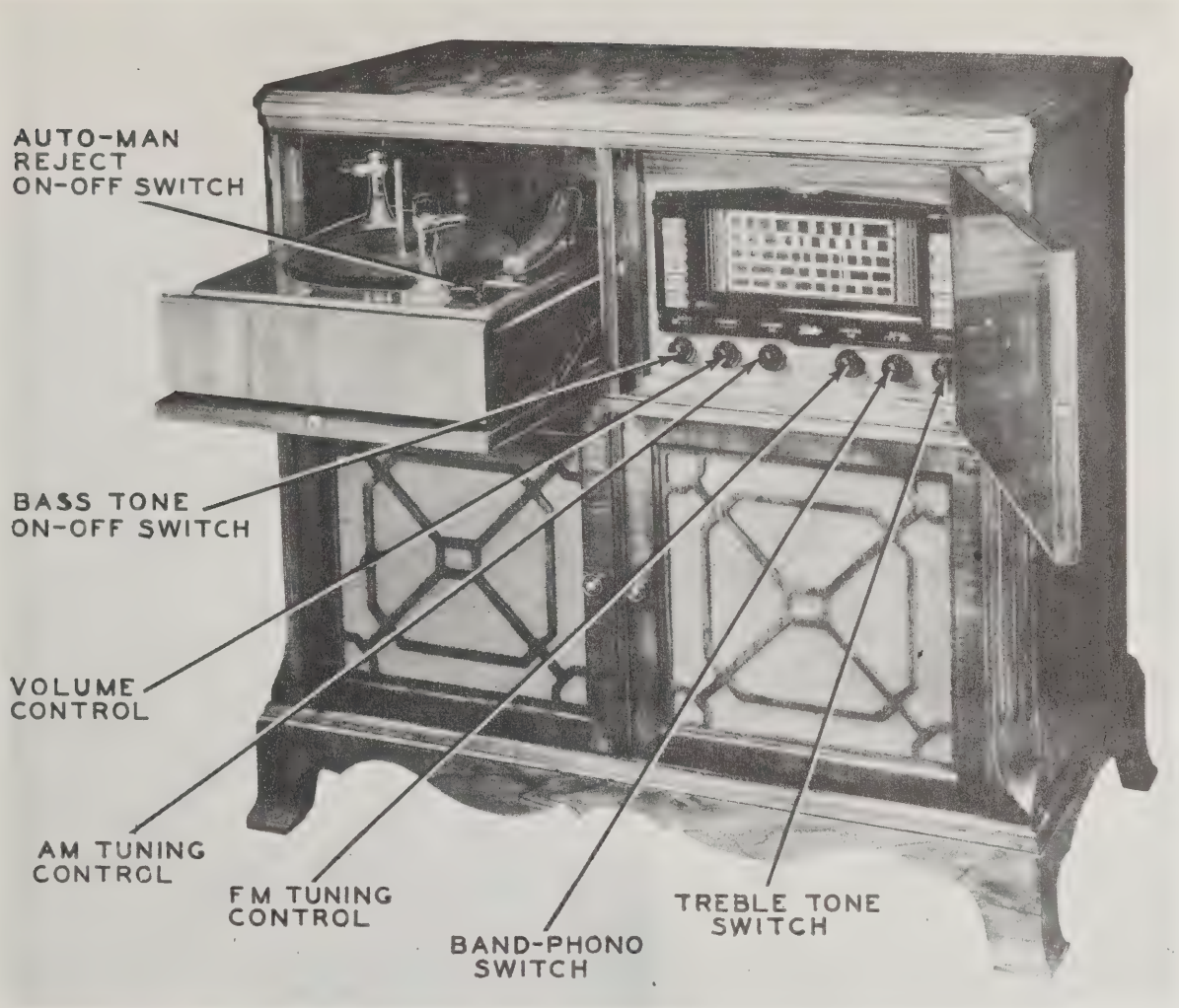
Pin No	35Z5GT Volt	35Z5GT Res
1	0V.	INF.
2	117V.AC	95Ω
3	112V.AC	93Ω
4	94V.DC	80KΩ
5	112V.AC	93Ω
6	122V.DC	80KΩ
7	87V.AC	70Ω
8	125V.AC	80KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DELCO
MODELS R-1251, R-1252



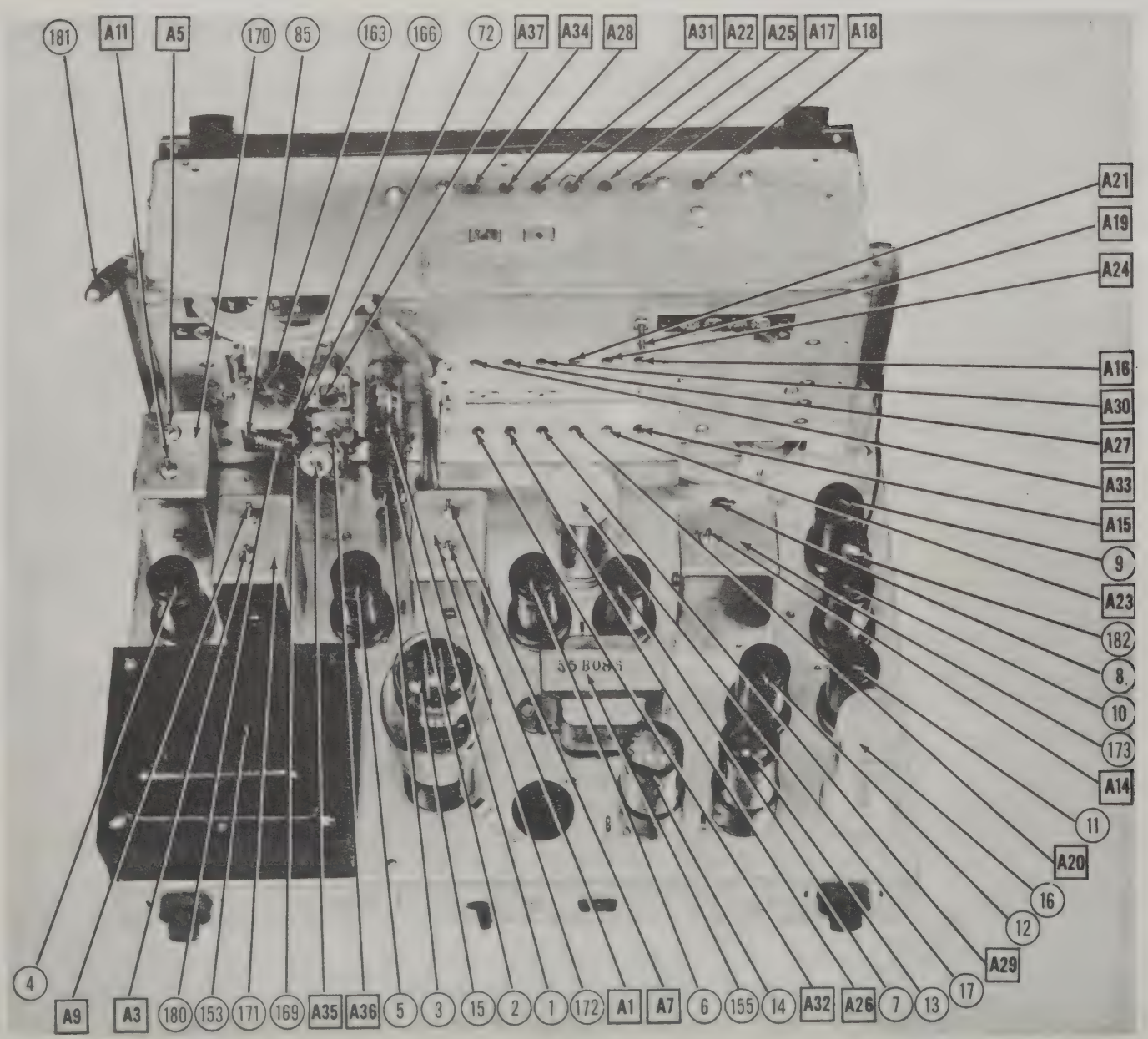
DELCO
MODELS R-1251, R-1252 PAGE 1

TRADE NAME	Delco, Models R-1251, R-1252 (Series X, XX and XXX)
MANUFACTURER	Delco Radio, Div. of GM Corp., Kokomo, Indiana
TYPE SET	AC Operated Phono-Radio Combination FM-AM Superheterodyne Receiver with Loop Antenna and Pushbutton Tuning.
TUBE (FIFTEEN)	Types, 6BA6 RF Amp., 6BE6 Mixer, 6J6 HF Osc.-AFC, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6SG7 FM 3rd IF Amp.-AM Det.-AVC, 6SH7 FM 4th IF Amp., 6AL5 FM Det., 6J5 1st AF Amp., 6J5 2nd AF Amp., 6SQ7 3rd AF Amp., 6SQ7 Phase Inverter, (2) 6V6GT Power Output, 5U4G Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	1.27 Amp. @ 117 Volts AC
TUNING RANGE--	BROADCAST 540-1700KC SHORT WAVE 5.8-18MC, 9-12MC, 15-18MC FM 88-108MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

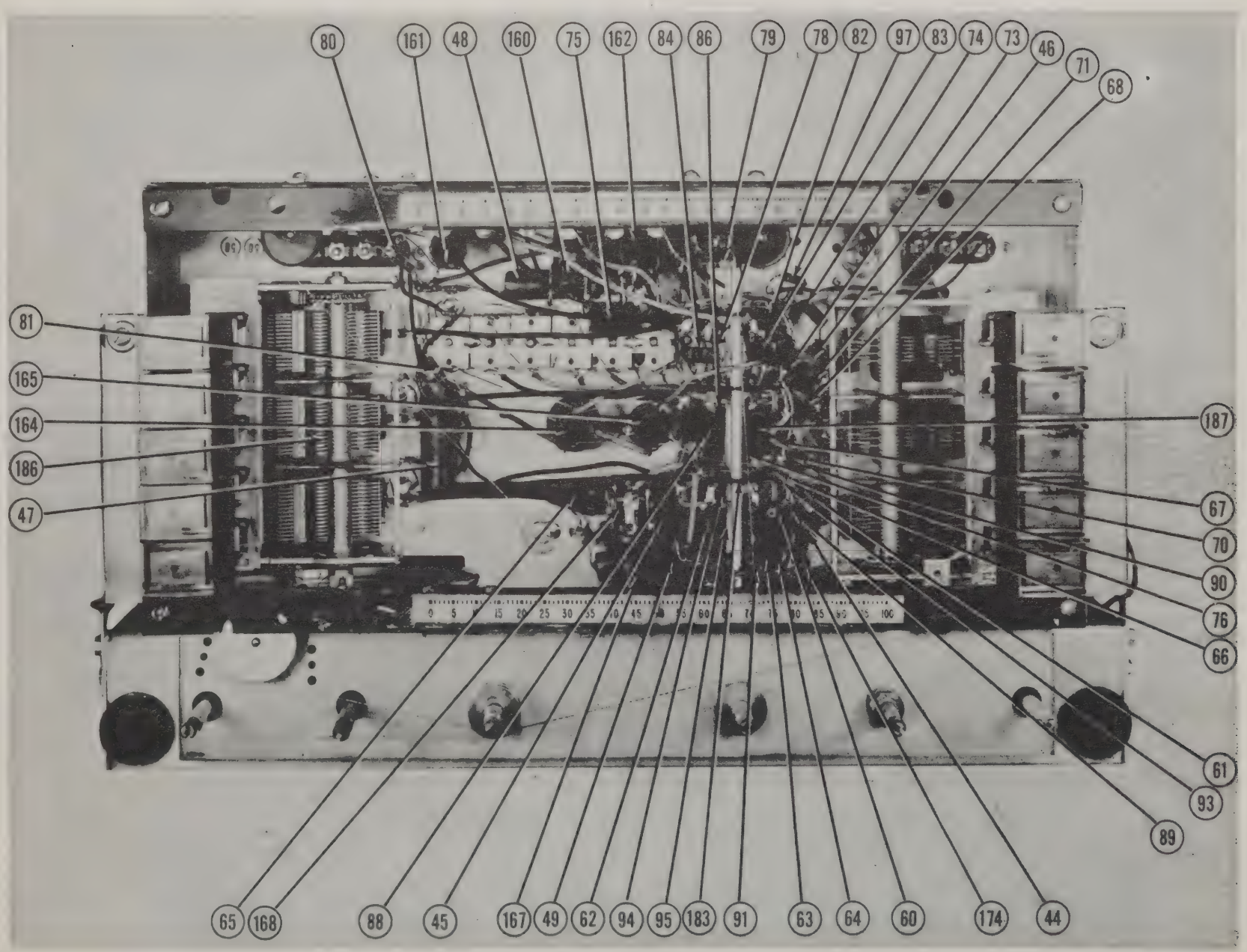
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

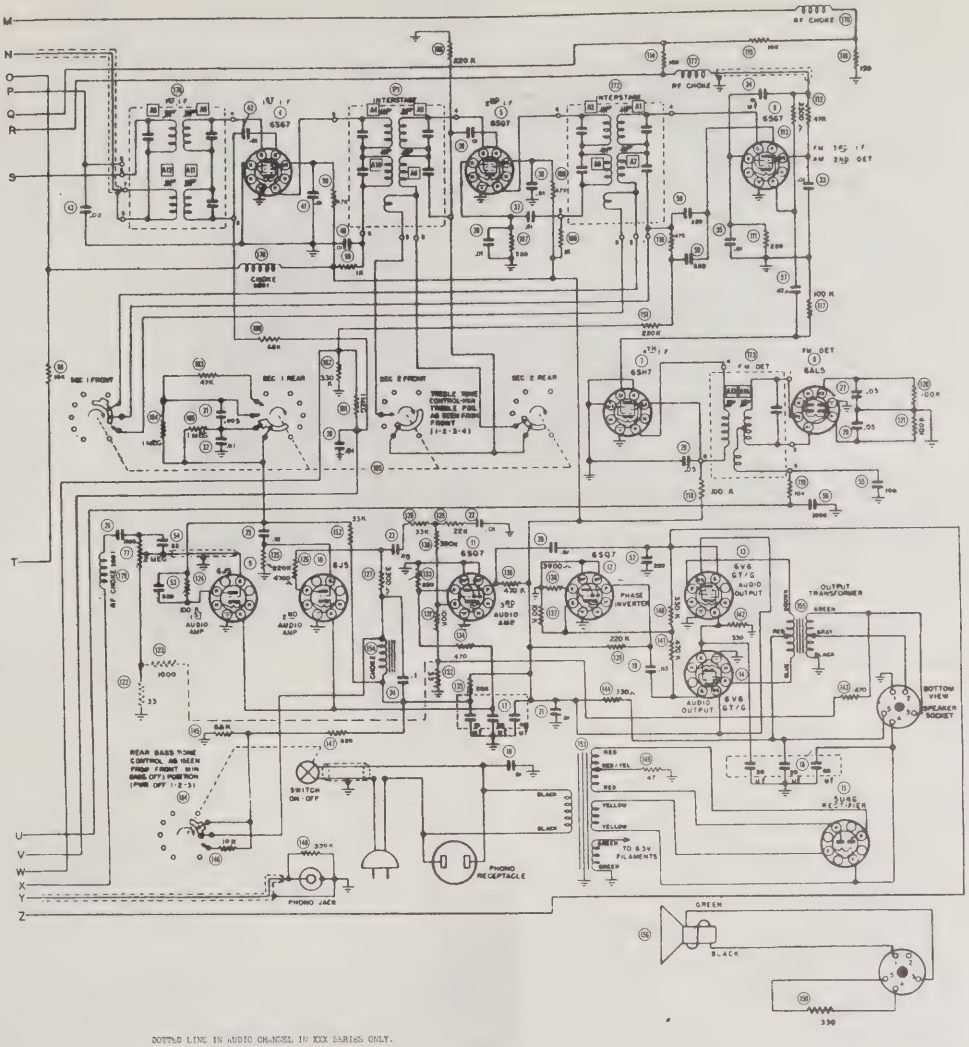
CHASSIS—TOP VIEW



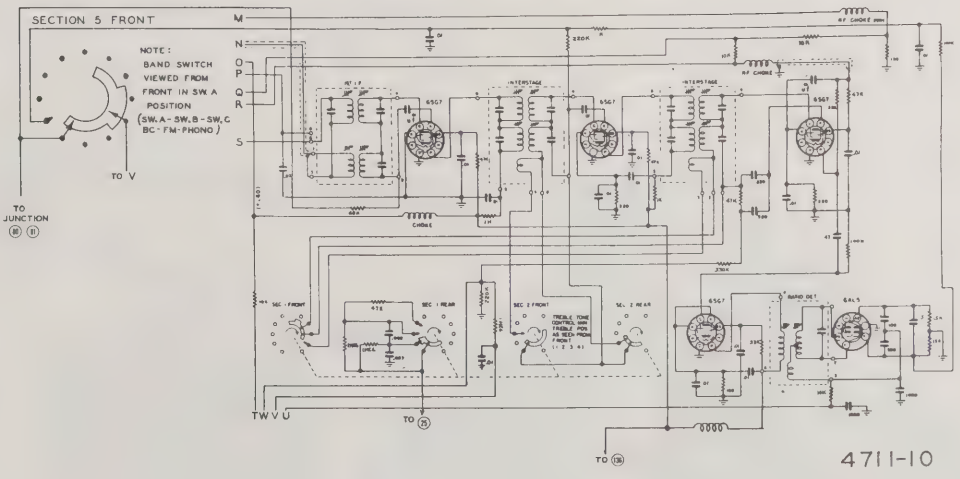
A2
A4
A6
A8
A10
A12
A13

CHASSIS—BOTTOM VIEW

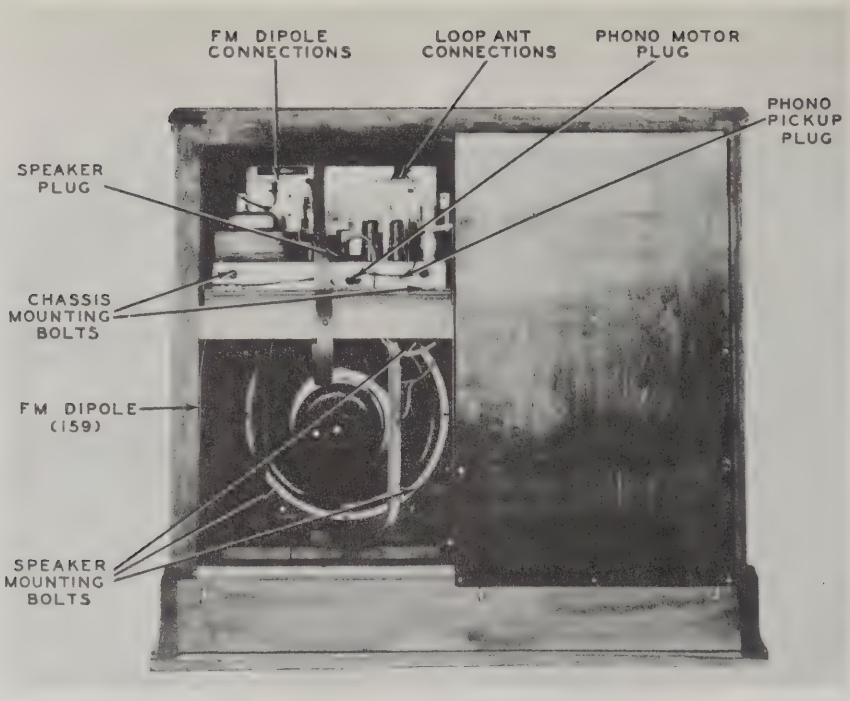




ALTERNATE CIRCUIT FOR .X SERIES

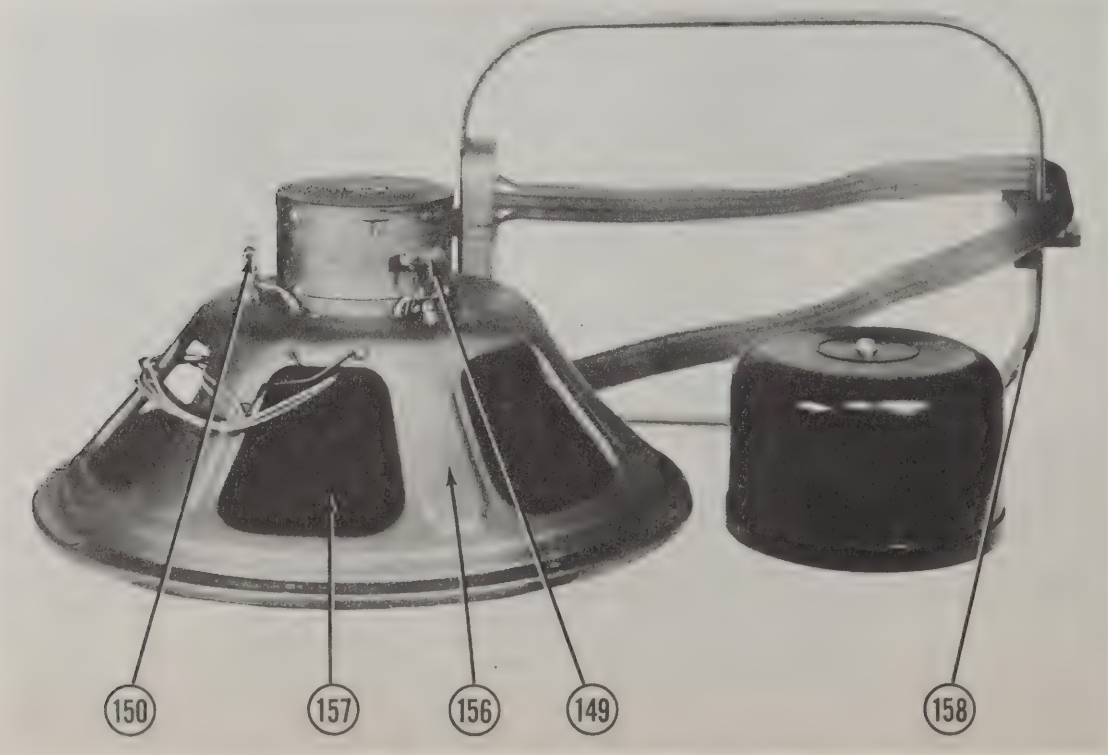


The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



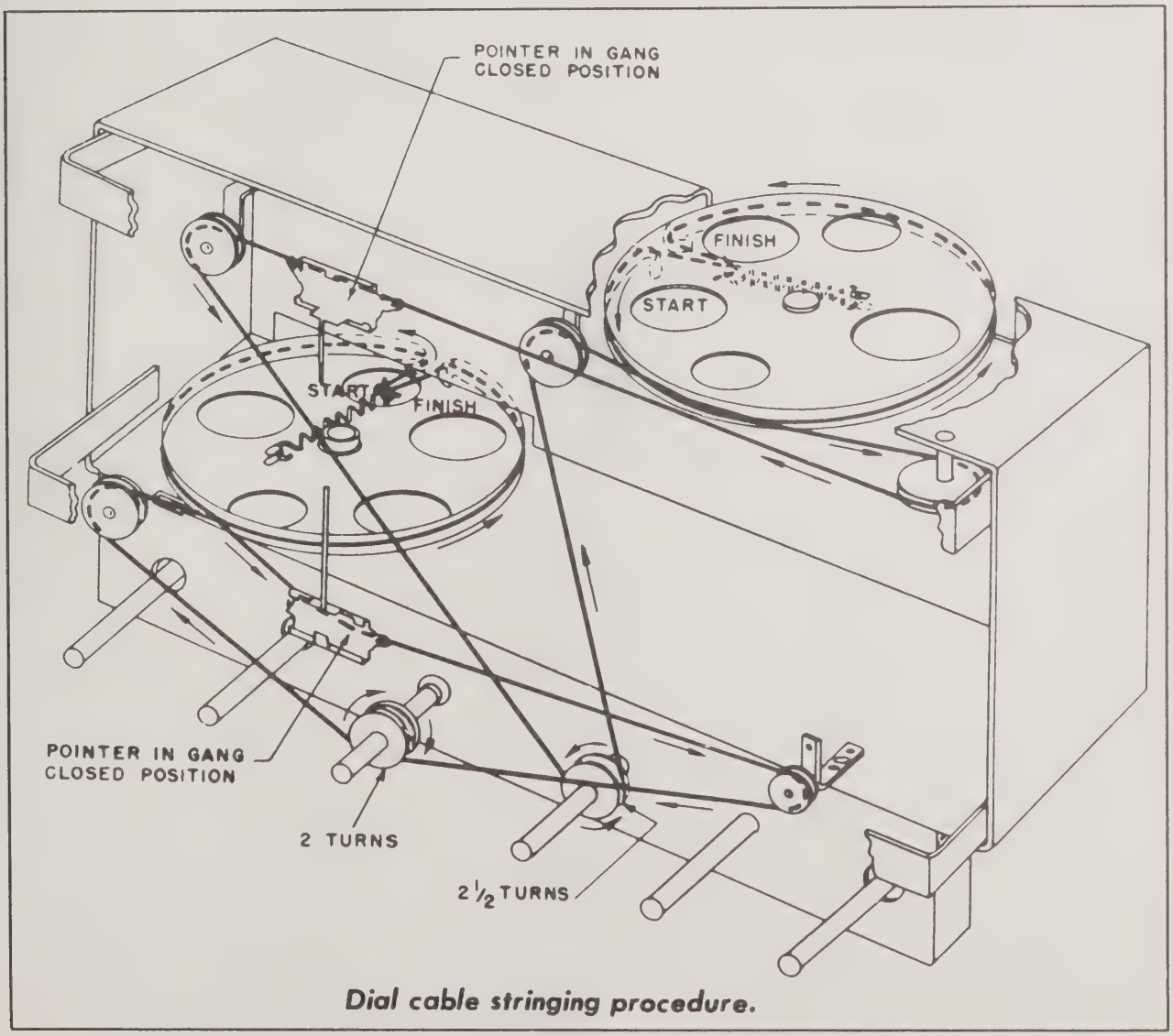
DISASSEMBLY INSTRUCTIONS

1. Remove six push on type control knobs.
2. Remove phono-motor plug from chassis.
3. Remove phono-pickup plug from chassis.
4. Remove FM antenna leads from chassis.
5. Remove loop antenna leads from chassis.
6. Remove speaker plug from chassis.
7. Remove foil ground strap from chassis.
8. Remove two bolts and four Phillips head screws from clamps holding chassis in cabinet. Remove chassis from cabinet.
9. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.



PUSHBUTTON ADJUSTMENTS

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Remove translucent inserts by pulling straight out.
3. AM pushbuttons are at low frequency end of dial. FM pushbuttons are at high frequency end.
4. Loosen buttonsset screws about one half turn.
5. Push any AM button in completely and hold.
6. Manually tune in desired station.
7. Holding button in, tighten set screw firmly.
8. Check accuracy of setting by detuning with manual tuning control and retuning with pushbutton. If setting is off, repeat Steps 4, 5, 6, and 7.
9. Replace translucent insert.
10. To set up the remaining AM buttons follow the same procedure as outlined above.
11. Follow same procedure for setting FM pushbuttons.



Dial cable stringing procedure.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use scales on dial pointer rails for calibration purposes. These are accessible after dial backplate has been removed. With tuning cap fully closed set right edges of dial pointer saddles to "0" on both scales.
Standard RMA dummy antenna consists of 200 MMFD cap. in series with a 20 M.H. RF Choke which is shunted by a 400 MMFD cap. in series with a 400Ω carbon resistor.
Set bass control to #1 position (first position clockwise from "off" position) and treble control to #4 position (fully clockwise). Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for aligning.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD.	High side to Pin 4 (grid) 6SG7 2nd IF Tube (5). Low side to chassis.	455KC	BC (3 positions clockwise from fully counter clockwise)	AM calibration strip #55	Across voice coil	A1,A2,	Adjust for maximum output.
2	.01 MFD	High side to Pin 4 (grid) 6SG7 1st IF Tube (4). Low side to chassis.	"	"	"	"	A3,A4.	" " " "
3	.01 MFD	High side to Pin 7 (grid) 6BE6. Low side to chassis.	"	"	"	"	A5,A6.	" " " "
4	.01 MFD	High side to Pin 4 (grid) 6SG7 2nd IF Tube (5). Low side to chassis.	10.7MC	FM (1 position counter clockwise from fully clockwise)	"	VTVM from junction of resistor 101 and cap. 30 to chassis.	A7,A8.	Set bass control to #1, treble control to #4. Adjust for maximum deflection.
5	.01 MFD.	High side to Pin 4 (grid) 6SG7 1st IF Tube (4). Low side to chassis.	"	"	"	"	A9,A10	"
6	.01 MFD.	High side to Pin 7 (grid) 6BE6. Low side to chassis.	"	"	"	"	A11,A12	"
7	.01 MFD	High side to Pin 4 (grid) 6SG7 2nd IF Tube (5). Low side to chassis.	"	"	"	VTVM to Pin 7 of 6AL5 and chassis.	A13	Adjust for maximum deflection.
8	.01 MFD	"	"	"	"	VTVM to Pin 3 of FM Detector Transformer (173) and chassis.	A14	Adjust for zero volts.
9	RMA Dummy	High side to "A" terminal. Low side to "B" terminal on ant. term. board.	1500KC	BC	AM calibration strip #82.	Across voice coil	A15	Adjust for maximum output.
10	"	"	"	"	Tune for maximum output.	"	A16,A17	" " " "
11	"	"	600KC	"	AM calibration strip #15.5.	"	A18	" " " "
12	"	"	"	"	Tune for maximum output.	"	A19	" " " "
13	"	"	12MC	SW B (1 position clockwise from fully counter clockwise)	AM calibration strip #91.5.	"	A20	" " " "
14	"	"	"	"	Tune for maximum output.	"	A21,A22	" " " "
15	"	"	9MC	"	AM calibration strip #6.5.	"	A23	" " " "
16	"	"	"	"	Tune for maximum output.	"	A24,A25	" " " "
17	"	"	18MC	SW A (fully counter clockwise)	AM calibration strip #94.5.	"	A26	" " " "
18	"	"	"	"	Tune for maximum output.	"	A27,A28	" " " "
19	"	"	15MC	"	AM calibration strip #7.5.	"	A29	" " " "
20	"	"	"	"	Tune for maximum output.	"	A30,A31	" " " "
21	"	"	16MC	SW C (2 positions clockwise from fully counter clockwise)	AM calibration strip #84.	"	A32	" " " "
22	"	"	"	"	Tune for maximum output.	"	A33,A34	" " " "
23	150Ω in series with each lead.	Connected across "D" terminals of the FM Ant. terminal strip.	108MC	FM (1 position counter clockwise from fully clockwise)	FM calibration strip #83.5.	VTVM connected same as in Step 4.	A35,A36 A37.	Adjust for maximum deflection in order given.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DELCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6BA6	6BA6	7BX	
2	Mixer	6BE6	6BE6	7CH	AM Oscillator
3	Osc.-AFC	6J6	6J6	7BF	High Freq. Oscillator
4	1st IF Amp.	6SG7	6SG7	6BK	
5	2nd IF Amp.	6SG7	6SG7	6BK	
6	FM 3rd IF-AM Det.-AVC	6SG7	6SG7	6BK	
7	FM 4th IF Amp.	6SH7	6SH7	6FK	
8	FM Det.	6AL5	6AL5	6BT	
9	1st AF Amp.	6J5	6J5	6Q	
10	2nd AF Amp.	6J5	6J5	6Q	
11	3rd AF Amp.	6SQ7	6SQ7	6Z	
12	Phase Inv.	6SQ7	6SQ7	6Z	
13	Power Output	6V6GT	6V6GT	7AC	
14	Power Output	6V6GT	6V6GT	7AC	
15	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DELCO PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
16A	60	450	1217710	UP9DJ53‡					■ Filter
B	20	450							▲ "
C	20	30							Cath. Bypass
17A	40	450	1217711	UP9DJ53†	FP346	DY-315		AF86J4A†	■ Filter
B	10	450							▲ "
C	20	30							Cath. Bypass
18	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	Line Bypass
19	.05	600	7230592	DT6S5	TP415	S-6-05	TC-15	684-05	Audio Coupling
20	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	" "
21	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	RF Bypass Pwr. Supp.
22	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	Tone Compensation
23	.05	600	7230592	DT6S5	TP415	S-6-05	TC-15	684-05	Audio Coupling
24	.1	200	1207908	DT4P1	TP418	S-4-1	TC-1	484-.1	Tone Compensation
25	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	Audio Coupling
26	.003	600	1207893	DT6D3	TP406	S-6-003	TC-23	684-003	Audio Coupling
27	.05	600	7230592	DT6S5	TP415	S-6-05	TC-15	684-05	Ratio Det. Bias
28	.05	600	7230592	DT6S5	TP415	S-6-05	TC-15	684-05	" " "
29	.05	600	7230592	DT6S5	TP415	S-6-05	TC-15	684-05	4th IF Screen Bypass
30	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	AVC Filter
31	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Tone Compensation
32	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	" "
33	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	3rd IF Screen Bypass
34	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	3rd IF Plate Decoup.
35	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	3rd IF Cath. Bypass
36	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	2nd IF Screen Bypass
37	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	2nd IF Plate Decoup.
38	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	2nd IF Cath. Bypass
39	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	2nd IF Grid Filter
40	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	1st IF Plate Decoup.
41	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	1st IF Screen Bypass
42	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	AVC Filter
43	.02	600	1212099	DT6S2	TP412	S-6-02	TC-12	684-02	Mixer Plate Decoup.
44	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	" " "
45	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	Mixer Screen Bypass
46	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	RF Plate Decoup.
47	.05	600	7230592	DT6S5	TP415	S-6-05	TC-15	684-05	AVC Filter
48	.02	600	1212099	DT6S2	TP412	S-6-02	TC-12	684-02	" "
49	.02	600	1212099	DT6S2	TP412	S-6-02	TC-12	684-02	AFC Filter
50	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	Filament Bypass
51	.01	600	1208600	DT6S1	TP410	S-6-01	TC-11	684-01	" "
52	220	500	7231178	5W5T25	MC240	M0.5-322	1FM-325	1468-00025	Output Grid Filter
53	330	500	1211209	5W5T3	MC241	M0.5-333	1FM-335	1468-00035	Tone Compensation
54	22	500	7233766	5W5Q25	MC220	M0.5-422	MS-425	1468-000025	" "
55	100	500	1210275	5W5T1	MC235	M0.5-31	1FM-31	1468-0001	RF Filter
56	1000	500	1208683	1W5D1	MC255	MW.5-21	1FM-21	1468-001	De-emphasis
57	47	500	1207625	5W5Q5	MC225	M0.5-447	1FM-45	1468-00005	IF Coupling
58	220	500	7231178	5W5T25	MC240	M0.5-322	1FM-325	1468-00025	Diode Filter
59	220	500	7231178	5W5T25	MC240	M0.5-322	1FM-325	1468-00025	" "

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DELCO PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
116	150Ω	½	A151	BW-½-150	Br.-Grn.-Br. AFC Cathode
117	100KΩ	½	A104	BTS-100K	Br.-Blk.-Yl. 4th IF Grid
118	100KΩ	1		BTA-100K	Br.-Blk.-Yl. 4th IF Screen Dropping
119	10KΩ	½	A103	BTS-10K	Br.-Blk.-Or. De-Emphasis
120	100KΩ	½	A104	BTS-100K	Br.-Blk.-Yl. Ratio Detector Network
121	100KΩ	½	A104	BTS-100K	Br.-Blk.-Yl. " " "
122	33Ω	½	A330	BW-½-33	Or.-Or.-Blk. Feedback
123	1KΩ	½	A102	BTS-1K	Br.-Blk.-Red "
124	100KΩ	½	A104	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
125	220KΩ	½	A224	BTS-220K	Red-Red-Yl. 2nd AF Grid
126	4700Ω	½	A472	BTS-4700	Yl.-Vi.-Red 2nd AF Plate Load
127	3300Ω	½	A332	BTS-3300	Or.-Or.-Red 2nd AF Plate Load
128	33KΩ	½	A333	BTS-33K	Or.-Or.-Or. Tone Compensation
129	22KΩ	½	A223	BTS-22K	Red-Red-Or. " "
130	390KΩ	½		BTS-390K	Or.-White-Yl. 3rd AF Grid
131	100KΩ	½	A104	BTS-100K	Br.-Blk.-Yl. 3rd AF Grid
132	33Ω	½	A330	BW-½-33	Or.-Or.-Blk. Feedback
133	220Ω	½	A221	BW-½-220	Red-Red-Br. 3rd AF Cathode
134	470Ω	½	A471	BTS-470	Yl.-Vi.-Br. 1st and 2nd AF Cathode
135	22KΩ	2	C223	BT-2-22K	Red-Red-Or. Filter
136	470KΩ	½	A474	BTS-470K	Yl.-Vi.-Yl. 3rd AF Plate Load
137	100KΩ	½	A104	BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
138	3900Ω	½	A392	BTS-3900	Or.-White-Red Phase Inverter Cathode
139	220KΩ	½	A224	BTS-220K	Red-Red-Yl. Phase Inverter Plate Load
140	330KΩ	½	A334	BTS-330K	Or.-Or.-Yl. Output Grid
141	470KΩ	½	A474	BTS-470K	Yl.-Vi.-Yl. " "
142	330Ω	5	1217700	AB-350	Output Cathode-See Note 2
143	470Ω	½	A471	BTS-470	Yl.-Vi.-Br. Feedback
144	330Ω	5	1217700	AB-350	Filter
145	68KΩ	½	A683	BTS-68K	Blue-Gray-Or. Tone Compensation
146	10KΩ	½	A103	BTS-10K	Br.-Blk.-Or. Tone Compensation
147	820Ω	½	A821	BTS-820	Gray-Red-Br. Tone Compensation
148	330KΩ	½	A334	BTS-330K	Or.-Or.-Yl. Phono Shunt
149	47Ω	4		AB-50	Bias - See Note 1
150	330Ω	10	1217631	AB-350	Filter
151	220KΩ	½	A224	BTS-220K	Red-Red-Yl. Diode Load
152	33KΩ	½	A333	BTS-33K	Or.-Or.-Or. Tone Compensation

Note 1 - X and XX series use 200Ω SW resistor in this application. IRC replacement AB-200.
Note 2 - On IRC replacement set slider at 330Ω from one end.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: DELCO PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.
153	117V AC @ 1.27A	800V CT @ .160A	5.1V AC @ 3.0A	6.3V AC @ 5.0A	1217600	P-6165	T22R07

CHOKE (TONE)

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000↻)	REPLACEMENT DATA: DELCO PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	INSTALLATION NOTES
154	.0045A	650Ω	12.5Henries	1217650			

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: DELCO PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	INSTALLATION NOTES
155	10,000Ω CT	8.6Ω tapped @ 3.5Ω	400Ω CT	.7Ω tapped @ .4Ω	1217599	A-3831 §	T22S56	§ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA: DELCO PART No.	REPLACEMENT DATA: JENSEN PART No.	INSTALLATION NOTES
156	FIELD VC IMP. PM .5Ω	1217678		
157	CONE DIA. VC DIA. 14" 1¼"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
60	10		1217714						AFC Coupling Cer.
61	1000		1217713						AFC Cath. Bypass Cer.
62	47	500	1207625	5W5Q5	MC225	M0.5-447	1FM-45	1468-00005	AFC Filter
63	500		1217712						Osc. Coupling Cer.
64	1000		1217713						Osc. Feedback Cer.
65	3900	500	1210108						Fixed Padder Cer.
66	47		1217715						FM Osc. Grid Cer.
67	10	500	7234242	5W5Q1	MC215	M0.5-41	MS-41	1468-00001	Mixer Plate Bypass
68	1000		1217713						Mixer Screen Bypass
69	39								Fixed Padder Cer.
70	47		1217715						Osc. Coupling Cer.
71	500		1217712						FM RF Plate Decoup. Cer.
72	22	500	7233766			M0.5-422			Fixed Trimmer
73	1000		1217713						RF Screen Bypass Cer.
74	47	500	1207625	5W5Q5	MC225	M0.5-447	1FM-45	1468-00005	FM RF Coupling
75	100	500	1210275	5W5T1	MC235	M0.5-31	1FM-31	1468-0001	RF Coupling
76	1000		1217713						Filament Bypass Cer.

†Do not use one section.
‡Parallel sections for desired capacity.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
77A	2 Meg.	1	1217702	MK403	D13-139	AM-66-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 77A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DELCO PART No.	IRC PART No.	
78	1 Meg.	½	A105	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
79	1 Meg.	½	A105	BTS-1 Meg.	Br.-Blk.-Grn. AFC Network
80	100KΩ	½	A104	BTS-100K	Br.-Blk.-Yl. AVC Network
81	100KΩ	½	A104	BTS-100K	Br.-Blk.-Yl. AVC Network
82	100Ω	½	A101	BW-½-100	Br.-Blk.-Br. RF Cathode
83	33KΩ	1	B333	BTA-33K	Or.-Or.-Or. RF Screen Dropping
84	1KΩ	½	A102	BTS-1K	Br.-Blk.-Red Decoupling
85	10Ω	½	A100	BW-½-10	Br.-Blk.-Blk. Parasitic Suppressor
86	1 Meg.	½	A105	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
87	22KΩ	2	C223	BT-2-22K	Red-Red-Or. Converter Screen Dropping
88	10Ω	½	A100	BW-½-10	Br.-Blk.-Blk. Parasitic Suppressor
89	1KΩ	½	A102	BTS-1K	Br.-Blk.-Red Decoupling
90	22KΩ	½	A223	BTS-22K	Red-Red-Or. AM Oscillator Grid
91	1KΩ	½	A102	BTS-1K	Br.-Blk.-Red Converter Plate Decoupling
92	220Ω	½	A221	BW-½-220	Red-Red-Br. Parasitic Suppressor
93	22KΩ	½	A223	BTS-22K	Red-Red-Or. FM Oscillator Grid
94	220Ω	½	A221	BW-½-220K	Red-Red-Yl. Parasitic Suppressor
95	100KΩ	½	A104	BTS-100K	Br.-Blk.-Yl. AFC Network
96	10KΩ	2	C103	BTS-10K	Br.-Blk.-Or. Voltage Dropping
97	2200Ω	½	A222	BTS-2200	Red-Red-Red Antenna Loading
98	47KΩ	1	B473	BTA-47K	Yl.-Vi.-Or. 1st IF Screen Dropping
99	1KΩ	½	A102	BTS-1K	Br.-Blk.-Red Decoupling
100	68KΩ	½	A683	BTS-68K	Blue-Gray-Or. AVC Network
101	1 Meg.	½	A105	BTS-1 Meg.	Br.-Blk.-Grn. " "
102	330KΩ	½	A334	BTS-330KΩ	Or.-Or.-Yl. Diode Load
103	47KΩ	½	A473	BTS-47K	Yl.-Vi.-Or. Tone Compensation
104	1 Meg.	½	A105	BTS-1 Meg.	Br.-Blk.-Grn. Tone Compensation
105	1 Meg.	½	A105	BTS-1 Meg.	Br.-Blk.-Grn. Tone Compensation
106	220KΩ	½	A224	BTS-220K	Red-Red-Yl. AVC Network
107	220Ω	½	A221	BW-½-220	Red-Red-Br. 2nd IF Cathode
108	47KΩ	1	B473	BTA-47K	Yl.-Vi.-Or. 2nd IF Screen Dropping
109	1KΩ	½	A102	BTS-1K	Br.-Blk.-Red 2nd IF Plate Decoupling
110	47KΩ	½	A473	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
111	220Ω	½	A221	BW-½-220	Red-Red-Br. 3rd IF Cathode
112	47KΩ	1	B473	BTA-47K	Yl.-Vi.-Or. 3rd IF Screen Dropping
113	3300Ω	½	A332	BTS-3300	Or.-Or.-Red 3rd IF Plate Load
114	10KΩ	2	C103	BT-2-10K	Br.-Blk.-Or. Voltage Dropping
115	10KΩ	2	C103	BT-2-10K	Br.-Blk.-Or. Voltage Dropping

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	DELCO PART No.	MEISSNER PART No.	
158	Loop Ant.	0Ω	.5Ω	1217679		
159	Dipole Ant.			1217775		
160	Loop Loading Coil		13Ω	1217643		
161	BC Ant.Loading Coil		6Ω	1217642		
162	SW Ant.Coil	.5Ω	0Ω	1217645	14-1044	
163	FM Ant. Coil	0Ω	0Ω	1217649		
164	BC RF Coil	24Ω	7.5Ω	1217646	14-1027	
165	SW RF Coil	8Ω	0Ω	1217641	14-1045	
166	FM RF Coil	0Ω	0Ω	1217718		
167	BC Osc. Coil		6Ω	1217647	14-1040	
168	SW Osc. Coil	.3Ω	0Ω	1217644		
169	FM Osc. Coil	0Ω	0Ω	1217648		
170A	Input IF (AM)	5Ω	5.8Ω*	1217640		Items 170A & 170B in same can.
B	" " (FM)	.1Ω				
171A	Inter.IF (AM)	6Ω#	6Ω*	1217639		" 171A & 171B " " "
B	" " (FM)					
172A	Inter.IF (AM)	6Ω#	6Ω*	1217639		" 172A & 172B " " "
B	" " (FM)					
173	FM Detector	2.5Ω	2Ω	1217635		
174	HF Osc. Plate Choke		2Ω	1217613		
175	Fil. Choke		.2Ω	1217615		
176	RF Choke		12Ω	1217614		
177	" "		12Ω	1217614		
178	" "		12Ω	1217614		
179	" "		12Ω	1217614		
180	" "		0Ω	1217780		

*Includes both sec.
" " pri.

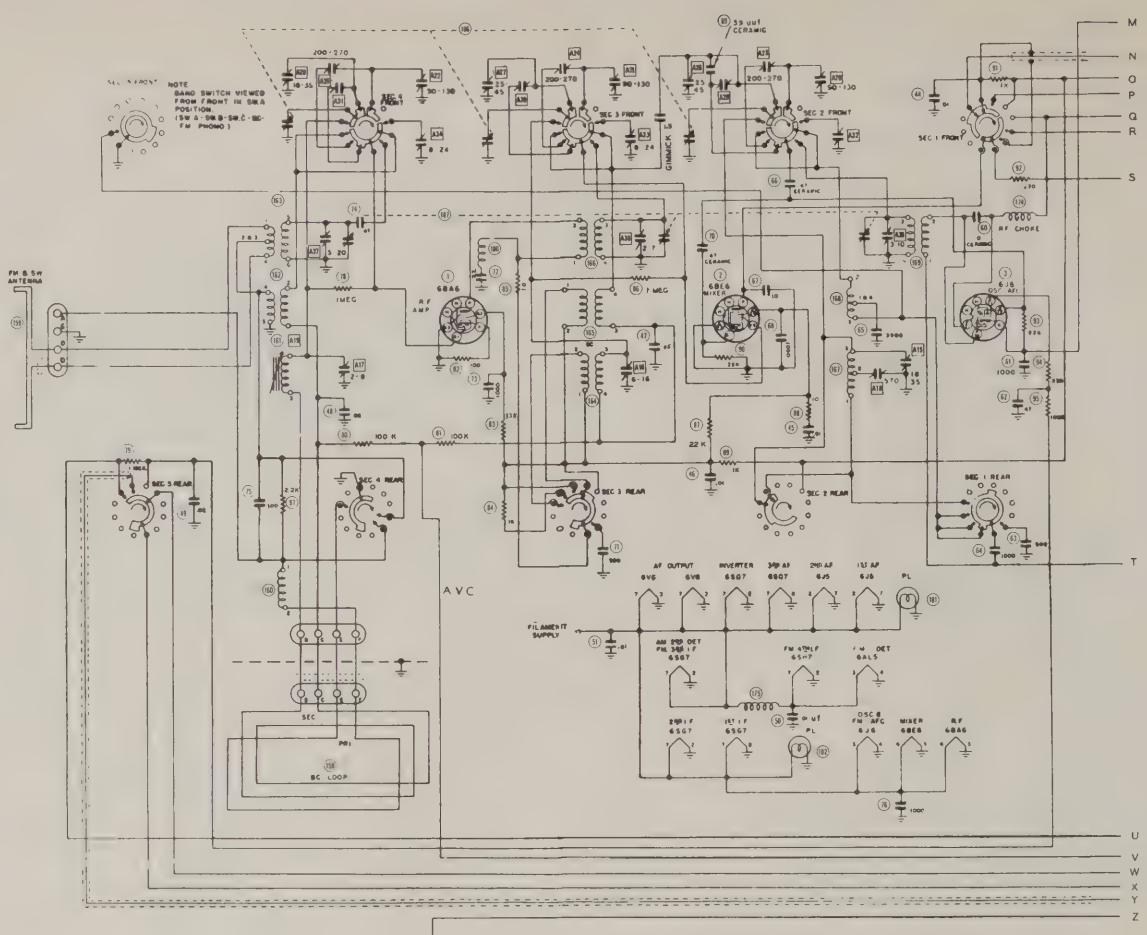
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					DELCO PART No.		
181	Bayonet	6-8	0.25	Blue			Type 44
182	"	"	"	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
183	Bandswitch	1217836	5 Sec.-6 Position
184	Tone Switch	1217638	Bass-On-Off
185	Treble Tone Sw.	1217637	
186	AM Tuning Cap.	1217717	13-486 MMF-Each section
187	FM Tuning Cap.	1217716	11-42 MMF-Each section
A15	Trimmer Strip	1217708	BC Osc. Adj.
A20			SW "B" Osc. Adj.
A23			SW "B" Osc. Padder
A26			SW "A" Osc. Adj.
A29			SW "A" Osc. Padder
A32			SW "C" Osc. Adj.
A16	Trimmer Strip	1217709	BC RF Adj.
A21			SW "B" RF Adj.
A24			SW "B" RF Padder
A27			SW "A" RF Adj.
A30			SW "A" RF Padder
A33			SW "C" RF Adj.
A17	Trimmer Strip	1207704	BC Ant. Adj.
A22			SW "B" Ant. Adj.
A25			SW "B" Ant. Padder
A28			SW "A" Ant. Adj.
A31			SW "A" Ant. Padder
A34			SW "C" Ant. Adj.
A18	Trimmer	1217703	BC Osc. Padder
A35	"	1217706	FM Osc. Adj.
A36	"	1217705	FM RF Adj.
A37	"	1217707	FM Ant. Adj.
	Dial Glass	1217828	Upper
	Dial Glass	1217829	Lower
	Escutcheon	1217830	
	Crystal Cartridge		ASTATIC Type MLP-1 (Original) ♦

♦ Use ASTATIC type QT-M for replacement. If extended response is required, use ASTATIC type Nylon 1J.



IF=455KC AM

IF=10.7MC FM

STAGE GAIN MEASUREMENTS

[illegible] TO RF GRID	1.5X	600KC
[illegible] TO CONVERTER GRID	2.5X	600KC
[illegible]	[illegible]	[illegible]

* READINGS TAKEN IN F M POSITION

VOLTAGE & RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	6BA6	-4 V.DC	0V.	0V.	6.3V.AC	315V.DC	150V.DC	1.7 V.DC	
2	6BE6	-5 V.DC	0V.	0V.	6.3V.AC	340V.DC	105V.DC	-4 V. DC	
3	6J6	200V.DC	*130V.DC	0V.	6.3V.AC	* 0V.	-12V.DC	2V.DC	
4	6SG7	0V.	0V.	0V.	-.7 V.DC	0V.	130V.DC	6.3V.AC	335V.DC
5	6SG7	0V.	0V.	3V.DC	0V.	3V. DC	170V.DC	6.3V.AC	335V.DC
6	6SG7	0V.	0V.	0V.	-.5V. DC	0V.	.8V. DC	6.3V.AC	1.5V. DC
*6	6SG7	0V.	0V.	2.5V.DC	0V.	2.5V.DC	150V.DC	6.3V.AC	280V.DC
*7	6SH7	0V.	0V.	0V.	-4 V.DC	0V.	42V.DC	6.3V.AC	40 V.DC
*8	6AL6	0V.	0V.	6.3V.AC	0V.	.75V.DC	0V.	-.8V.DC	
9	6J5	0V.	6.3V.AC	92V.DC	175V.DC	0V.	155V.DC	0V.	4V.DC
10	6J5	0V.	6.3V.AC	143V.DC	160V.DC	0V.	0V.	0V.	4V.DC
11	6SQ7	0V.	0V.	1.4V. DC	0V.	0V.	133V.DC	6.3V.AC	0V.
12	6SQ7	0V.	0V.	2.1V.DC	0V.	0V.	215V.DC	6.3V.AC	0V.
13	6V6GT	0V.	0V.	365V.DC	340V.DC	0V.	0V.	6.3V. AC	23V. DC
14	6V6GT	0V.	0V.	365V.DC	340V.DC	0V.	0V.	6.3V. AC	23V. DC
15	5U4G	0V.	420V.DC	0V.	400V.AC	0V.	400V.AC	0V.	420V.DC

RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	6BA6	1.4 MEG.	0Ω	0Ω	.1Ω	50 KΩ	80 KΩ	85Ω	
2	6BE6	20 KΩ	0Ω	0Ω	.1Ω	50 KΩ	70 KΩ	1.4 MEG.	
3	6J6	60 KΩ	10 KΩ	0Ω	.1Ω	INF.	20 KΩ	150Ω	
4	6SG7	0Ω	0Ω	0Ω	1.3 MEG.	0Ω	97 KΩ	.1Ω	50 KΩ
5	6SG7	0Ω	0Ω	210Ω	230 KΩ	210Ω	97 KΩ	.1Ω	50 KΩ
6	6SG7	0Ω	0Ω	200Ω	550 KΩ	200Ω	67 KΩ	.1Ω	23 KΩ
*6	6SG7	0Ω	0Ω	200Ω	500 KΩ	200Ω	67 KΩ	.1Ω	23 KΩ
*7	6SH7	0Ω	0Ω	0Ω	95 KΩ	0Ω	150 KΩ	.1Ω	150 KΩ
*8	6AL5	INF.	INF.	.1Ω	0Ω	100 KΩ	0Ω	100 KΩ	
9	6J5	0Ω	.1Ω	200 KΩ	35 KΩ	2 MEG.	100 KΩ	0Ω	700Ω
10	6J5	0Ω	.1Ω	80 KΩ	75 KΩ	200 KΩ	INF.	0Ω	700Ω
11	6SQ7	0Ω	90 KΩ	230Ω	0Ω	0Ω	520 KΩ	.1Ω	0Ω
12	6SQ7	0Ω	100 KΩ	4 KΩ	0Ω	0Ω	270 KΩ	.1Ω	0Ω
13	6V6GT	0Ω	0Ω	50 KΩ	50 KΩ	440 KΩ	100 KΩ	.1Ω	300Ω
14	6V6GT	0Ω	0Ω	50 KΩ	50 KΩ	520 KΩ	INF.	INF.	300Ω
15	5U4G	INF.	50 KΩ	INF.	240Ω	INF.	240Ω	.1Ω	50 KΩ

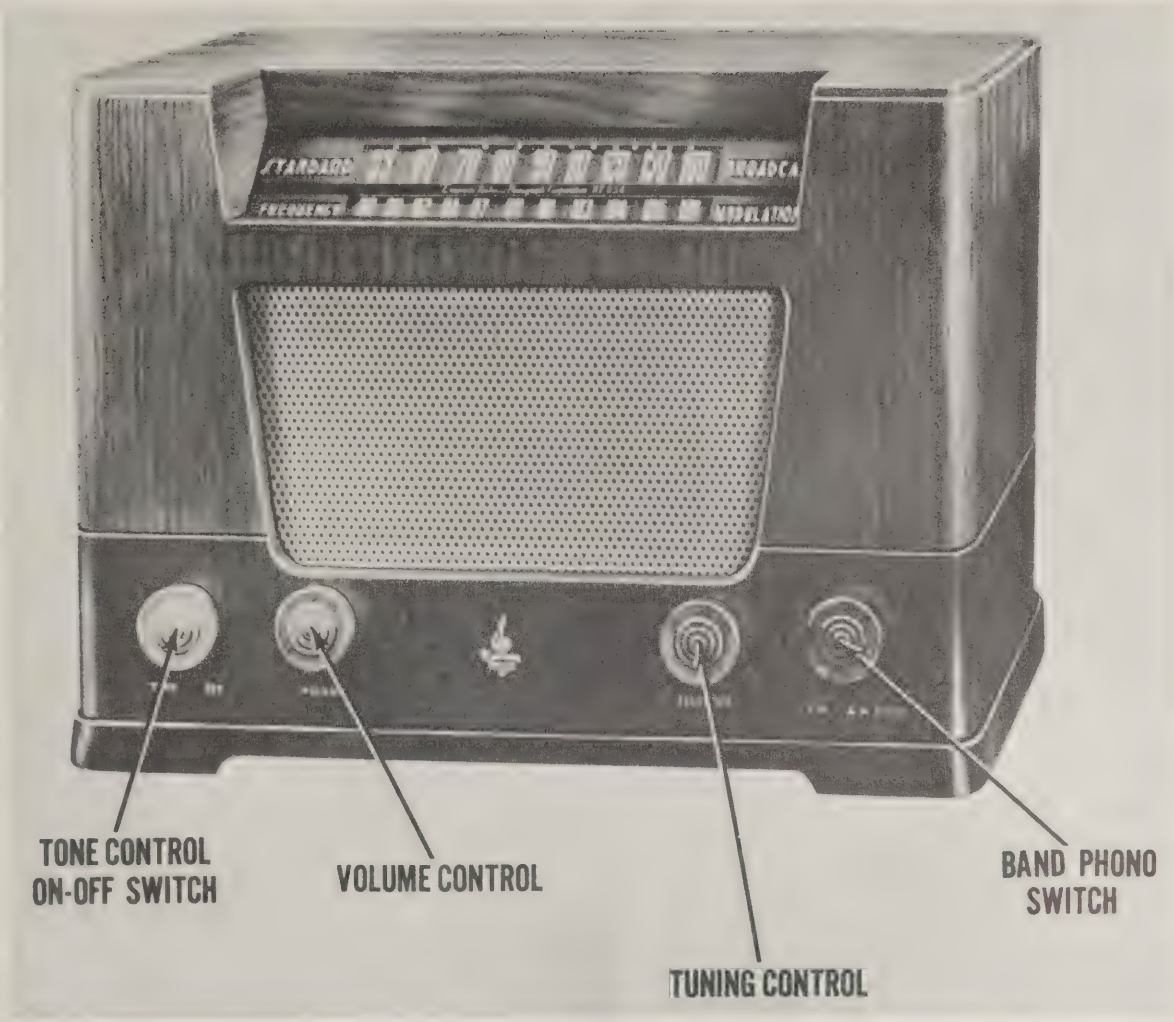
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4711-10

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

EMERSON
MODEL 528



EMERSON MODEL 528	
TRADE NAME	Emerson, Model 528 (Ch. 120038)
MANUFACTURER	Emerson Radio & Phono Corp., 111 Eighth Ave., New York, N.Y.
TYPE SET	AC Operated FM-AM Superheterodyne Receiver with Loop Antenna
TUBES	Types, 6AG5 RF Amp., 6BE6 Converter, 6BA6 1st IF Amp., 6BA6 FM 2nd IF Amp., 6AL5 FM-AM Det.-AVC, 6AU6 AF Amp., 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.750 Amp. @ 117 Volts AC
TUNING RANGE	- BROADCAST 535-1620KC FREQ. MOD. 88-108MC

EMERSON
MODEL 528 PAGE 1

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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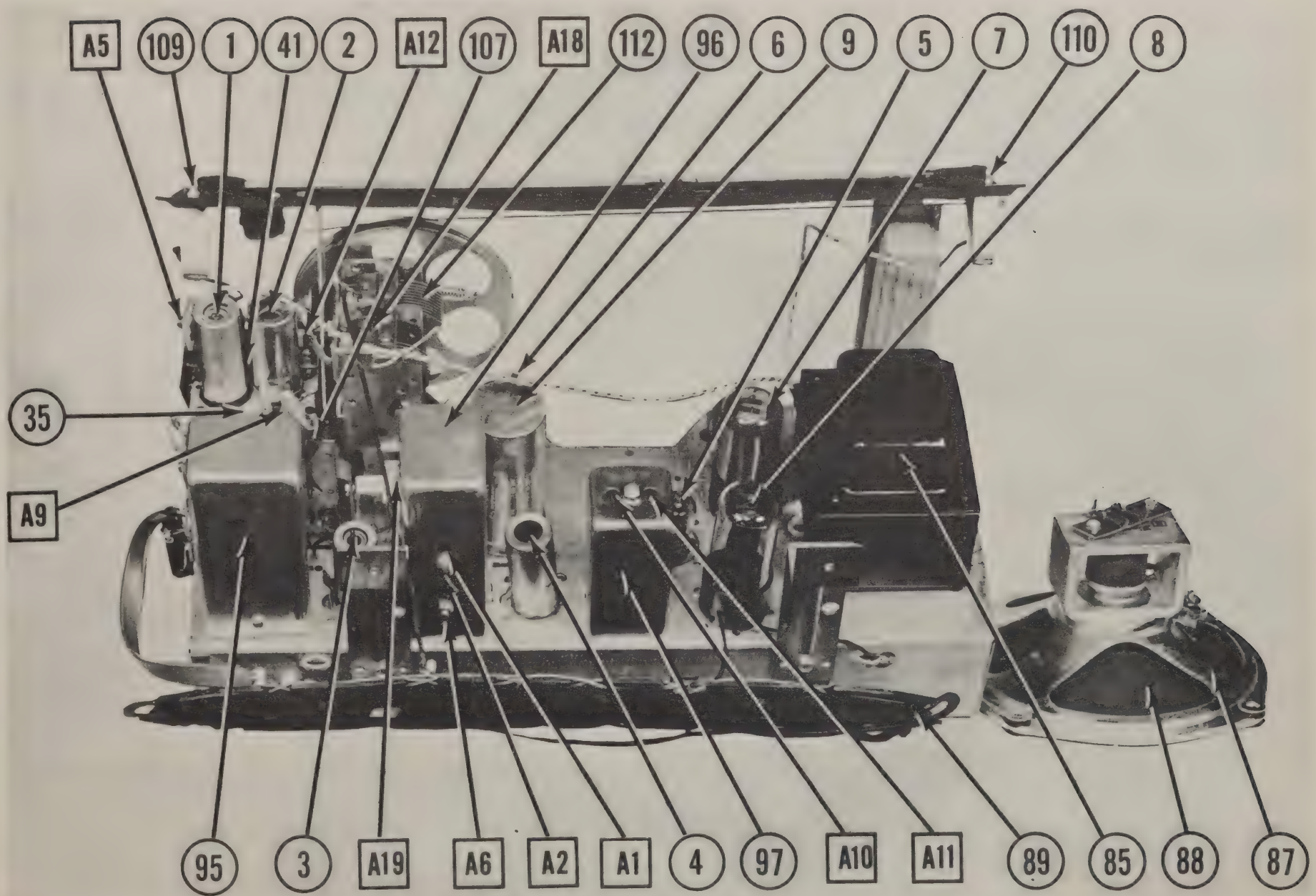
CHASSIS—TOP VIEW



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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	800535	6AG5	7BD	
2	Converter	800532	6BE6	7CH	
3	1st IF Amp.	800531	6BA6	7BK	
4	FM 2nd IF Amp.	800531	6BA6	7BK	
5	FM-AM Det.-AVC	800541	6AL5	6BT	
6	AF Amp.	800533	6AU6	7BK	
7	Power Output	800270	6V6GT	7AC	
8	Rectifier	800160	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	40	400	925268	UP9DJ53 *	FP238			AF444J4A *	◓ Filter
B	20	400			"			"	■ "
C	50	25			TC29			PRS25-25 *	▲ Cath. Bypass
10	8	450	925190	BR845	TC71	M-8-450	UT-8	PRS450-8	Filter
11	8	450	925190	BR845	TC71	M-8-450	UT-8	PRS450-8	"
12	5	50	925005	BR550	TC40	M-4-150	TA-55	PRS150-4	Ratio Det. Bias
13	.008	400	920512		TP450				Output Plate Bypass
14	.01	400	920090	DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
15	.1	400	920250	DT4P1	TP428	S-4-1	TC-1	484-.1	Audio Screen Bypass
16	.005	400	920180	DT6D5	TP408	S-6-005	TC-25	484-005	Tone Compensation
17	.005	400	920180	DT6D5	TP408	S-6-005	TC-25	484-005	Audio Coupling
18	.01	400	920090	DT4S1	TP421	S-4-01	TC-11	484-01	Tone Compensation
19	.01	400	920090	DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
20	.005	400	920180	DT6D5	TP408	S-6-005	TC-25	484-005	De-emphasis
21	.1	200	920040	DT4P1	TP428	S-4-1	TC-1	484-.1	AVC Filter
22	.05	200	920060	DT4S5	TP426	S-4-05	TC-15	484-05	" "
23	250	500	910320	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	FM Ant. Coupling
24	50	300	928102	5W5Q5	MC225	MO.5-45	1FM-45	1468-00005	Audio Plate Bypass Cer.
25	100	500	910100	5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Ratio Det. Load Cer.
26	100	500	910100	5W5T1	MC235	MO.5-31	1FM-31	1468-0001	" " "
27	250	500	910320	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Diode Filter
28	5000	500	910356	1W5D5	MC255	MW.5-25	1FM-25	1467-005	2nd IF Plate Decoup.
29	5000	500	910356	1W5D5	MC255	MW.5-25	1FM-25	1467-005	2nd IF Screen Bypass
30	100	500	910100	5W5T1	MC235	MO.5-31	1FM-31	1468-0001	IF Coupling
31	100	500	910100	5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Diode Filter
32	5000	500	910356	1W5D5	MC255	MW.5-25	1FM-25	1467-005	1st IF Screen Bypass
33	5000	500	910356	1W5D5	MC255	MW.5-25	1FM-25	1467-005	AVC Filter
34	5000	500	910356	1W5D5	MC255	MW.5-25	1FM-25	1467-005	Conv. Plate Decoup.
35	500	300	915003						Conv. Screen Bypass
36	50	300	928102						Conv. Cath. Bypass Cer.
37	25	300	928101						Osc. Grid Capacitor "
38	100	300	928106						RF Coupling "
39	250	300	910320						Wave Trap Cer.
40	10	300	928002						RF Plate Decoup. Cer.
41	500	300	915003						RF Screen Bypass
42	5000	500	910356	1W5D5	MC255	MW.5-25	1FM-25	1467-005	RF Filament Bypass
43	5000	500	910356	1W5D5	MC255	MW.5-25	1FM-25	1467-005	" " "
44	500	300	915003						RF Bypass Pwr. Supp.
45	30	300	928107						FM RF Coupling Cer.
46	50	300	928102						" " " "
47	7	300	928105						" " " "
48	7	300	928105						" " " "
49	5000	500	910356	1W5D7	MC255	MW.5-25	1FM-25	1467-005	RF Bypass Pwr. Supp.

* Parallel sections for desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
50A	1 Meg.	1	390378	TM238	D13-137X	AT-109	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 50A per instructions
51A	1 Meg.	1	390379	UM160			Tone Control
B	Shaft		Not Req.	SS25			Attach to 51A per instructions
C	Switch		" "	M26			" " " " " "

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
52	1000Ω	¼	320490	BTS-1000	Br.-Blk.-Red FM Antenna Loading
53	470KΩ	¼	321130	BTS-470K	Yl.-Vi.-Yl. RF Grid
54	100KΩ	¼	310970	BTS-100K	Br.-Blk.-Yl. AVC Network
55	39KΩ	1	370872	BTA-39K	Or.-White-Or. RF Screen Dropping
56	4700Ω	¼	310650	BTS-4700	Yl.-Vi.-Red RF Plate Decoupling
57	150Ω	¼	320290	BW-½-150	Br.-Grn.-Br. Parasitic Suppressor
58	12KΩ	¼	310750	BTS-12K	Br.-Red-Or. Converter Grid
59	18KΩ	2	397070	BT-2-18K	Br.-Gray-Or. Converter Screen Dropping
60	1000Ω	¼	320490	BTS-1000	Br.-Blk.-Red Converter Plate Decoupling
61	22KΩ	¼	310810	BTS-22K	Red-Red-Or. Oscillator Grid
62	100KΩ	¼	310970	BTS-100K	Br.-Blk.-Yl. AVC Network
63	27KΩ	1	370830	BTA-27K	Red-Vi.-Or. 1st IF Screen Dropping
64	1000Ω	¼	320490	BTS-1000	Br.-Blk.-Red 1st IF Plate Decoupling
65	1 Meg.	¼	321210	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
66	1 Meg.	¼	321210	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
67	2.2 Meg.	¼	321290	BTS-2.2 Meg.	Red-Red-Grn. 2nd IF Grid
68	27KΩ	1	370830	BTA-27K	Red-Vi.-Or. 2nd IF Screen Dropping
69	1000Ω	¼	320490	BTS-1000	Br.-Blk.-Red 2nd IF Plate Decoupling
70	330Ω	½	340370	BW-½-330	Or.-Or.-Br. Ratio Detector Bias
71	15KΩ	¼	310771	BTS-15K	Br.-Grn.-Or. " " "
72	470Ω	½	340410	BTS-470	Yl.-Vi.-Br. " " "
73	22KΩ	¼	350810	BTS-22K	Red-Red-Or. De-emphasis
74	47KΩ	¼	310890	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
75	100KΩ	¼	310970	BTS-100K	Br.-Blk.-Yl. Diode Load
76	47KΩ	¼	310890	BTS-47K	Yl.-Vi.-Or. Tone Compensation
77	2.2 Meg.	¼	321290	BTS-2.2 Meg.	Red-Red-Grn. AF Grid
78	1.5 Meg.	¼	311250	BTS-1.5 Meg.	Br.-Grn.-Grn. AF Screen Dropping
79	470KΩ	¼	321130	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
80	4.7 Meg.	½	351370	BTS-4.7 Meg.	Yl.-Vi.-Grn. Feedback
81	470KΩ	¼	321130	BTS-470K	Yl.-Vi.-Yl. Output Grid
82	270Ω	1	370350	BW-1-270	Red-Vi.-Br. Output Cathode
83	1000Ω	¼	320490	BTS-1000	Br.-Blk.-Red Filter

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ν)	REPLACEMENT DATA: EMERSON PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	INSTALLATION NOTES
84	.115A	210Ω	5 Henries	737068	C-1001 §		§ Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	INSTALLATION NOTES
85	117V AC @ .75A	600V CT @ .115A	5.2V AC @ 2.0A	6.5V AC @ 2.7A	730002	P-6313#	T22R05#	#Use universal mounting brkts.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	INSTALLATION NOTES
86	5000Ω	2.9Ω	300Ω	.8Ω	734202	A-3849	T22S58	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
87	FIELD	VC IMP.	180017	ST-108† Mod. P6-X		†Drill and tap magnet frame.
	PM	2.9Ω				
88	CONE DIA. 6"	VC DIA. 11/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA MEISSNER PART No.	
89	Loop Ant.	.1Ω	1.3Ω	700234		
90	FM Ant.Coil		0Ω	710014		Items 89, 91 and 93 are slug tuned and ganged together.
91	AM Wave Trap		63Ω			
92	FM RF Coil		0Ω	713003		
93	AM Osc.Coil	.5Ω	5.5Ω		14-1040	
94	FM Osc.Coil		0Ω	716112		
95A	AM Input IF	10.5Ω‡	10.5Ω‡	720523		Items 95A & 95B in same can.
B	FM " "	1Ω				
96A	AM Output IF	12Ω♦	11.5Ω	720524		Items 96A & 96B in same can.
B	FM " "					
97	Ratio Det. Trans.	1.2Ω	.2Ω	708145		
98	Plate RF Choke		1Ω	705005		
99	RF Choke		.1Ω	705007		
100	" "		0Ω	705003		
101	" "		1.2Ω	705000		
102	" "		.2Ω	705002		
103	" "		.2Ω	705002		
104	" "		.2Ω	705002		
105	" "		.2Ω	705002		
106	" "		.2Ω	705002		
107	" "		.2Ω	705002		
108	" "		.2Ω			

‡Includes both sec.
♦Includes both pri.

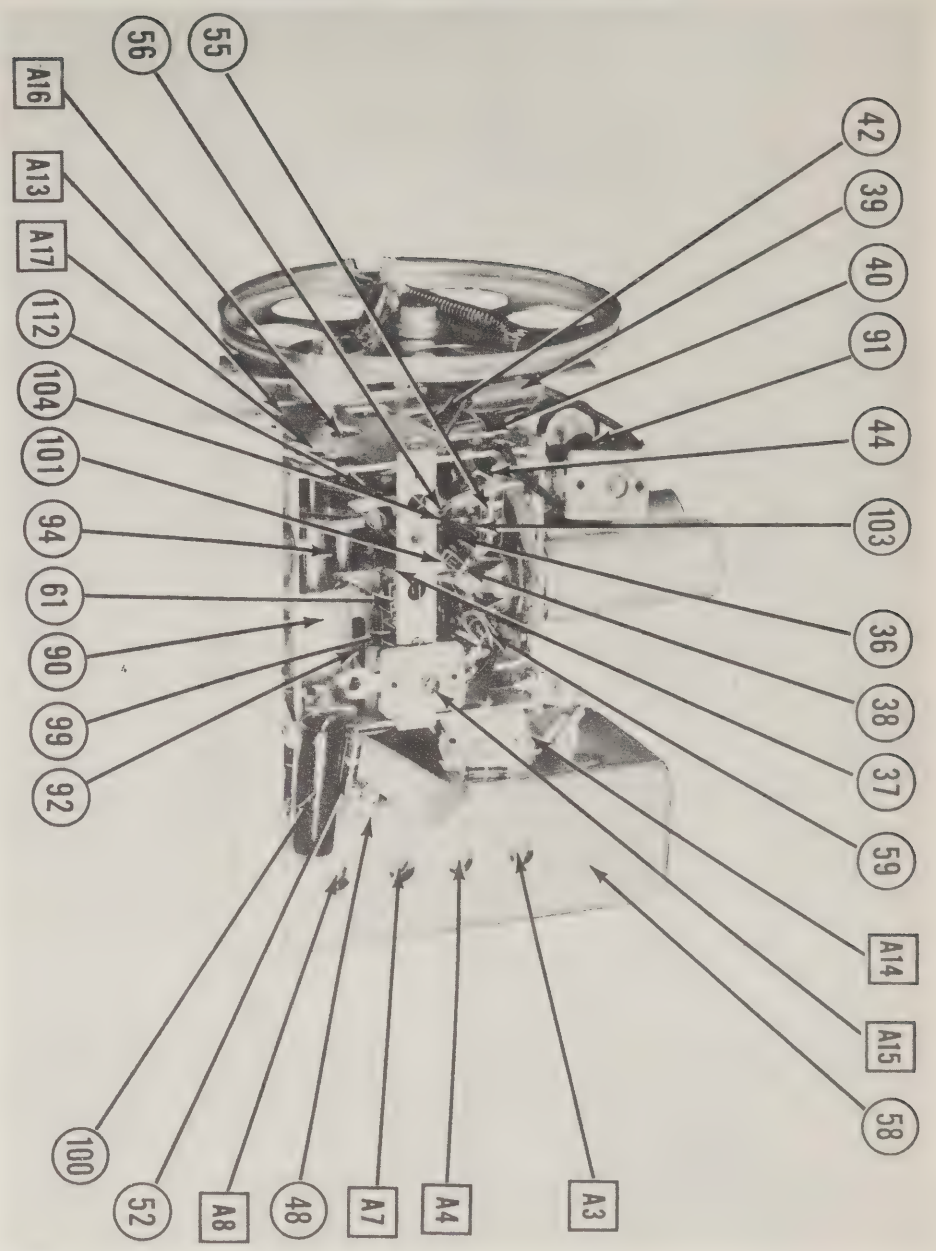
DIAL LIGHT

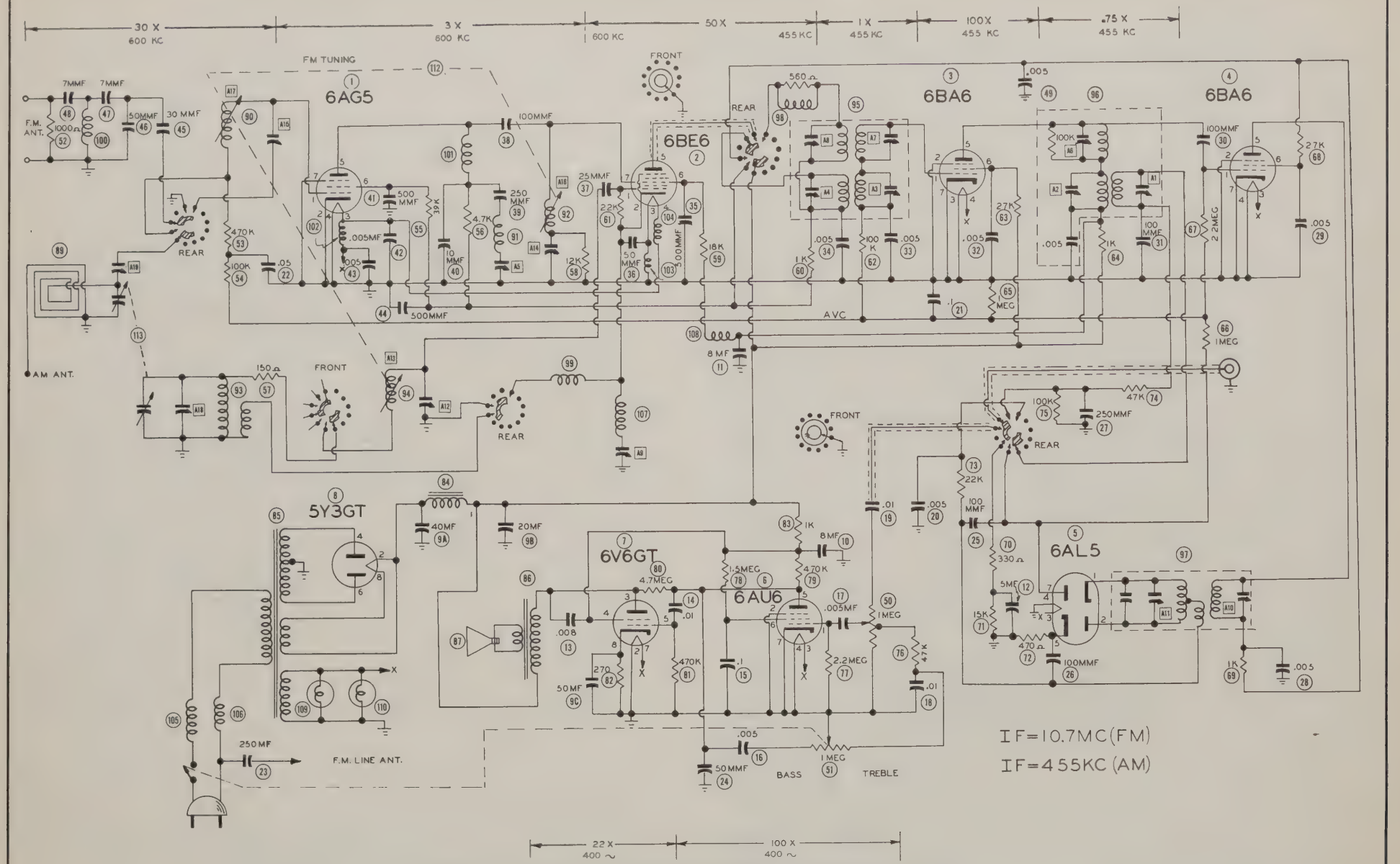
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA EMERSON PART No.		INSTALLATION NOTES
109	Bayonet	6-8	0.25	Blue	307020		Type 44
110	"	"	"	"	"		" "

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
111	Switch	510400	Band-Phono
112	FM Tuning Unit		
113	Tuning Capacitor	900312	18-470 MMF, 30-203 MMF
	Receptacle	508010	Phono Input
	Socket Assembly	507040	Left Dial Light
	" "	507050	Right Dial Light
	Drive Shaft	230501	Dial Assembly
	Drive Shaft	230505	FM Tuner
	Dial Backplate	520506	
	Dial Glass	520508	
	Pointer	521206	
	Cabinet	140056	
	Knob	620012	With Indicator Dot
	"	620030	

CHASSIS—BOTTOM VIEW

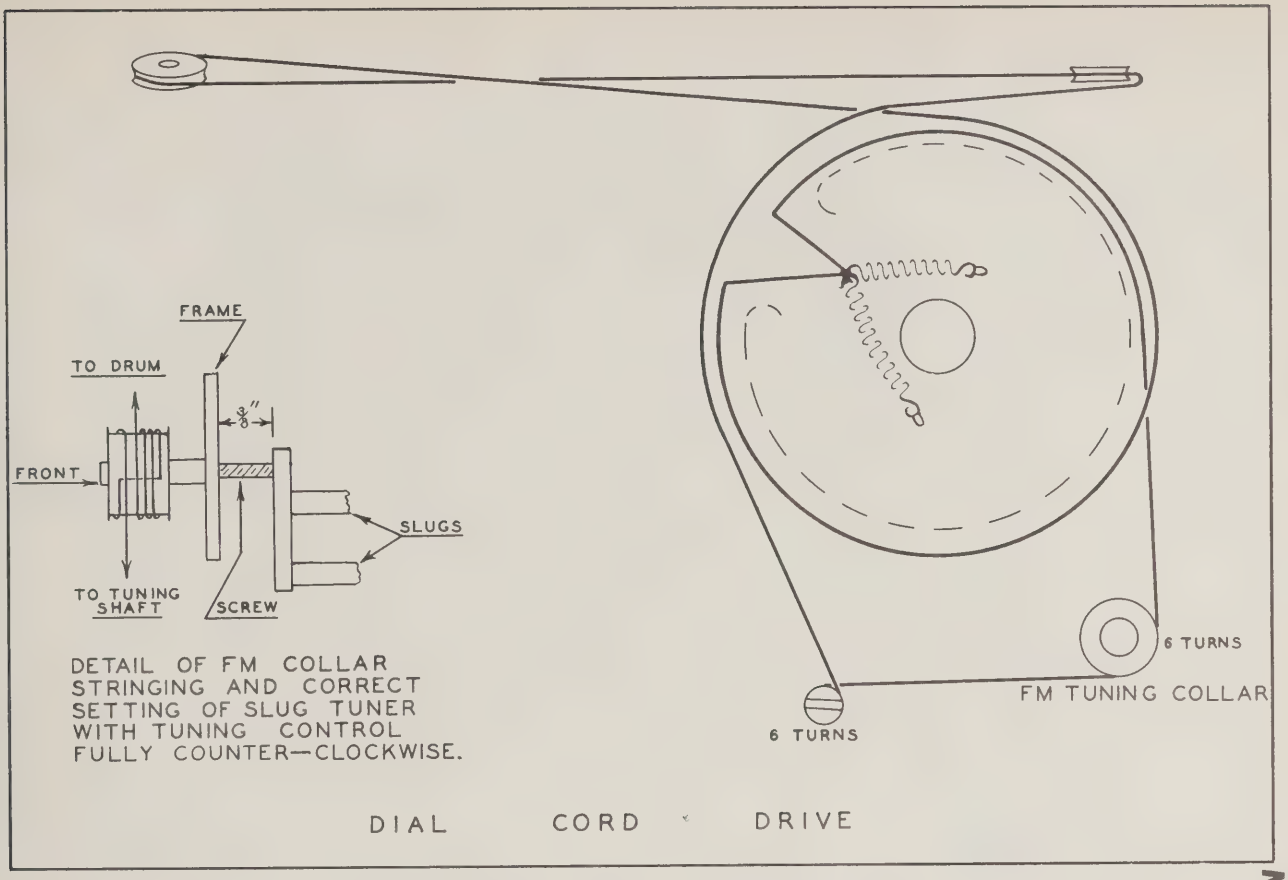




THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4711-13

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

* TAKEN IN FM POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6AG5	-.5V.DC	0V.	6.5V. AC	0V.	225V.DC	137V.DC	0V.	
2	6BE6	-.3V.DC	0V.	0V.	6.5V. AC	270V.DC	100V.DC	0V.	
3	6BA6	-.1V.DC	0V.	0V.	6.5V. AC	260V.DC	115V.DC	0V.	
4	6BA6	-.4V.DC	0V.	6.5V.AC	0V.	0V.	0V.	0V.	
4A	6BA6	-.3V.DC	0V.	6.5V.AC	0V.	250V.DC	110V.DC	0V.	
5	6AL5	0V.	0V.	6.5V.AC	0V.	0V.	0V.	-.8V.DC	
6	6AU6	-.8V.DC	0V.	6.5V.AC	0V.	105V.DC	32V.DC	0V.	
7	6V6GT	0V.	0V.	260V.DC	270V.DC	0V.	105V.DC	6.5V. AC	13.5V.DC
8	5Y4G	0V.	300V.DC	0V.	300V.AC	0V.	300V.AC	0V.	300V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6AG5	1.5MEG.	0Ω	.2Ω	0Ω	55 KΩ	90 KΩ	0Ω	
2	6BE6	20 KΩ	1Ω	.2Ω	.5Ω	50 KΩ	68 KΩ	12 KΩ	
3	6BA6	680KΩ	0Ω	0Ω	.1Ω	50 KΩ	77KΩ	0Ω	
4	6BA6	3 MEG.	0Ω	.1Ω	0Ω	INF.	INF.	0Ω	
4A	6BA6	3 MEG.	0Ω	.1Ω	0Ω	50 KΩ	77KΩ	0Ω	
5	6AL5	INF.	INF.	.1Ω	0Ω	520Ω	0Ω	135 KΩ	
6	6AU6	2.5 MEG	0Ω	.1Ω	0Ω	520KΩ	1.5MEG.	0Ω	
7	6V6GT	0Ω	0Ω	50KΩ	50KΩ	470KΩ	520 KΩ	.1Ω	250Ω
8	5Y4G	INF.	50KΩ	INF.	130Ω	INF.	125Ω	INF.	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. To inject signal in Steps 4, 5 and 6 remove tube and connect wire to Pin 1. Replace tube making certain that wire does not short to shield base. For Step 8 connect two 100KΩ resistors in series from Pin 7 of 6AL5 to chassis. After Step 8 turn tuning control fully counter-clockwise and check adjustment of FM tuning unit per dial cord drawing. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to stator of front section of tuning capacitor. Low side to chassis.	455KC	BC (center position)	High freq. end of dial.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output.
2	.1 MFD.	"	"	"	Low freq. end of dial.	"	A5	" " minimum "
3	.05 MFD.	High side to Pin 1 (grid) of 6BA6 1st IF Tube (3). Low side to chassis.	10.7MC (unmodulated)	FM (fully clockwise.)	High freq. end of dial.	VTVM connected to Pin 7 of 6AL5 and chassis.	A6	Adjust for maximum deflection.
4	.05 MFD.	High side to Pin 1(grid) of 6BE6. Low side to chassis.	10.6MC (unmodulated)	"	"	"	A7	"
5	.05 MFD.	"	10.8MC (unmodulated)	"	"	"	A8	"
6	.05 MFD.	"	10.7MC (unmodulated)	"	"	"	A9	"
7	.05 MFD.	High side to Pin 1 (grid) of 6BA6 2nd IF Tube (4). Low side to chassis.	"	"	"	"	A10	"
8	.05 MFD.	High side to Pin 1 (grid) of 6BA6 2nd IF Tube (4). Low side to chassis.	"	"	"	VTVM connected from junction of 2 100KΩ resistors & junction of cap. 25 and 26. (See preliminary alignment notes)	A11	Adjust for zero deflection.
9	150Ω in series with each lead.	High side to "A" Low side to "G" on FM Ant. terminals. (Disconnect internal antenna)	108MC (unmodulated)	"	108MC	VTVM connected to Pin 7 of 6AL5 and chassis.	A12	Adjust for maximum deflection.
10	"	"	88MC (unmodulated)	"	88MC	"	A13	Adjust iron core (hold brass in position) for maximum deflection.
11	"	"	98MC	"	98MC	"	A13	Adjust both brass and iron cores for maximum deflection. Repeat steps 9, 10 and 11 until no further improvement can be made.
12	"	"	106MC	"	Tune for maximum deflection.	"	A14, A15.	Adjust for maximum deflection.
13	"	"	90MC	"	"	"	A16, A17.	Adjust iron cores (hold brass in place) for maximum deflection
14	"	"	100MC	"	"	"	A16, A17.	Adjust both iron & brass cores for maximum deflection. Repeat steps 12, 13 and 14 until no further improvement can be made.
15	200MMFD	High side to "A" terminal. Low side to "G" terminal of AM Ant. terminals.	1600KC	BC	1600KC	Across voice coil	A18	Adjust for maximum output.
16	20MMFD	"	1400KC	"	Tune for maximum output.	"	A19	" " " "

EMERSON
MODEL 536

EMERSON
MODEL 536

EMERSON MODEL 536

TRADE NAME	Emerson, Model 536 (Ch. 120036)
MANUFACTURER	Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (SEVEN)	Types, 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC or 9 Volt "A" Supply & 90 Volt "B" Supply
RATING	.240 Amp. @ 117 Volts AC or 54 MA @ 9.2 Volts DC & 15 MA @ 95 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) of 1R5. Low side to B-.	262KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy ant. to 200 MMF to reduce hum modulation.
2	200MMFD.	High side to ext. ant. lead. Low side to ground lead.	1600KC	"	"	A5	Adjust for maximum output.
3	200MMFD.	"	1400KC	Tune for maximum output.	"	A6,A7.	" " " "
4	200MMFD.	"	600KC	"	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

EMERSON MODEL 430

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1T4	1T4	6AR	
2	Converter	1R5	1R5	7AT	
3	IF Amp.	1T4	1T4	6AR	
4	Det.-AVC-AF	1S5	1S5	6AU	
5	Power Output	3Q4	3Q4	7BA	
6	Power Output	50B5	50B5	7BZ	
7	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	20	150	925004	UP7DJ19†		DY-304	EL-351		◓ Filter
B	40	150							■ "
C	100	25		BRH25J					▲ Filament Bypass
9	.05	400	920030	DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
10	.25	100	920110						Filament Bypass
11	.02	400	920020	DT4S2	TP423	S-4-02	TC-12	484-02	" "
12	.01	400	920090	DT4S1	TP421	S-4-01	TC-11	484-01	Output Plate Bypass
13	.02	400	920020	DT4S2	TP423	S-4-02	TC-12	484-02	Audio Coupling
14	.01	400	920090	DT4S1	TP421	S-4-01	TC-11	484-01	Audio Screen Bypass
15	.002	400	920515	DT6D2	TP405	S-6-002	TC-22	484-002	Audio Coupling
16	.05	200	920060	DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
17	.05	200	920060	DT4S5	TP426	S-4-05	TC-15	484-05	Conv. Grid Filter
18	.02	400	920020	DT4S2	TP423	S-4-02	TC-12	484-02	Plate Decoupling
19	.02	400	920020	DT4S2	TP423	S-4-02	TC-12	484-02	Screen Bypass
20	.1	200	920040	DT4P1	TP428	S-4-1	TC-1	484-.1	AVC Filter
21	.15	200	920420	DT4P2	TP429	S-4-2	TC-2	484-.2	Line Isolation
22	212	500		5W5T2	MC237	M0.5-32	1FM-32	1468-0002	Audio Plate Bypass*
23	220	500	910000	5W5T25	MC240	M0.5-322	1FM-325	1468-00025	Diode Filter
24	110	500		5W5T1	MC235	M0.5-311	1FM-31	1468-0001	" "

*May be 220 MMFD in some models.
†Do not use 30 MFD. section.

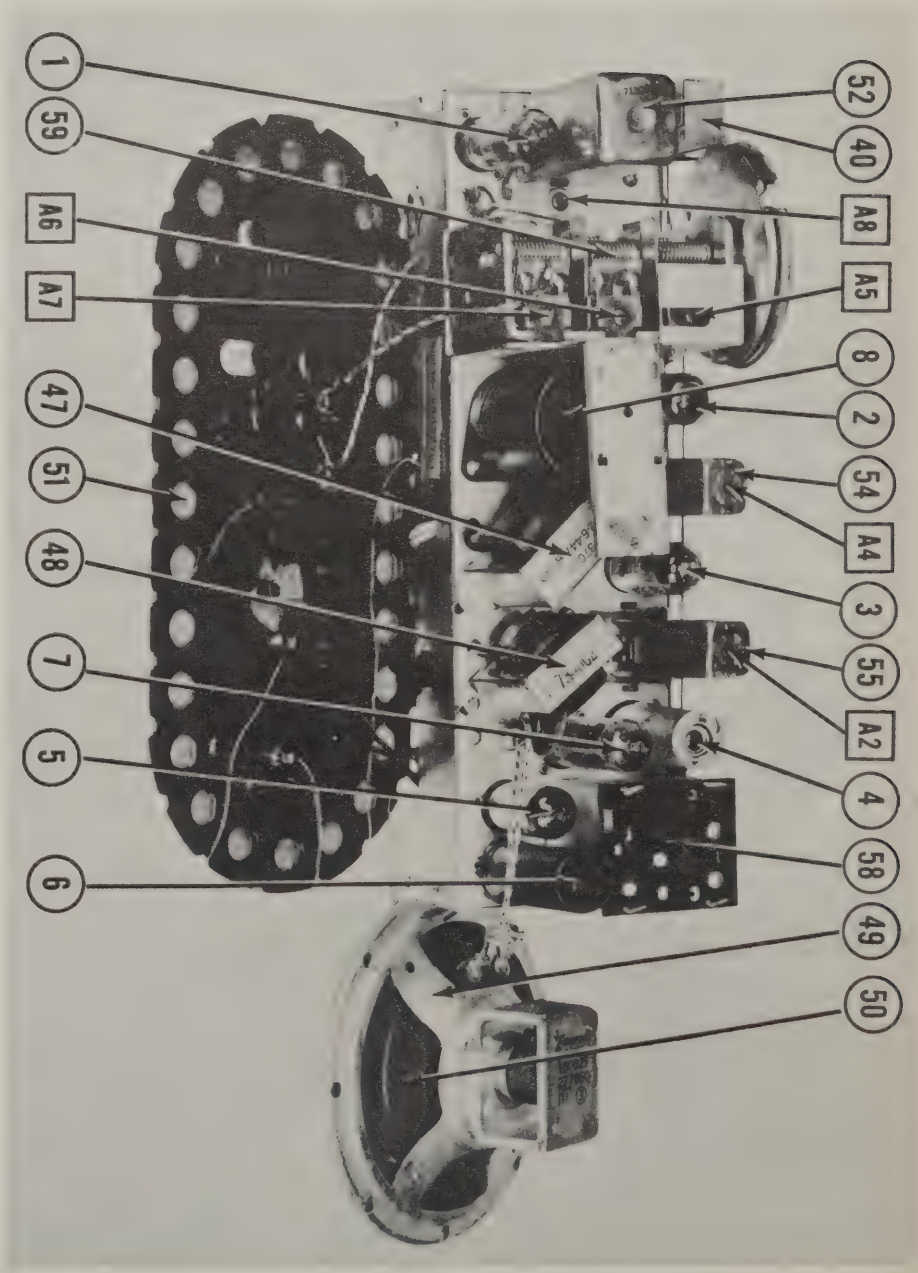
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	1	390003	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 25A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
26	220KΩ	½	351050	BTS-220K	Red-Red-Yl. Line Isolation
27	3.3 Meg.	½	351330	BTS-3.3 Meg.	Or.-Or.-Grn. Converter Grid
28	100KΩ	½	350970	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
29	3.3 Meg.	½	351330	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
30	3.3 Meg.	½	351330	BTS-3.3 Meg.	Or.-Or.-Grn. " "
31	15KΩ	½	340770	BTS-15K	Br.-Grn.-Or. Screen Dropping
32	4700Ω	½	340650	BTS-4700	Yl.-Vi.-Red Plate Decoupling
33	2.2 Meg.	½	351290	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
34	10 Meg.	½	351450	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
35	3.3 Meg.	½	351330	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
36	470KΩ	½	351130	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
37	1.5 Meg.	½	351250	BTS-1.5 Meg.	Br.-Grn.-Grn. Output Grid
38	470KΩ	½	351130	BTS-470K	Yl.-Vi.-Yl. Output Grid
39	1.5 Meg.	½	351250	BTS-1.5 Meg.	Br.-Grn.-Grn. Feedback
40	213Ω	6	394003		Series Filament
41	560Ω	½	340430	BTS-560	Grn.-Blue-Br. Filament String
42	39Ω	½	340150	BW-½-39	Or.-White-Blk. Filament String
43	1000Ω	½	340490	BTS-1000	Br.-Blk.-Red Filament String
44	680Ω	½	340450	BTS-680	Blue-Gray-Br. Filament String
45	10KΩ	½	340730	BTS-10K	Br.-Blk.-Or. Output Cathode
46	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode RF Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	EMERSON PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
47	.046A	560Ω	9 Henries	737001	C-1707	T20C52	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
48	6000Ω tapped @ 1600Ω	4.1Ω	360Ω tapped @ 190Ω	.7Ω	734002				

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			EMERSON PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
49	PM	4 .1Ω	180021	Mod. P5-X		
	CONE DIA.	VC DIA.				
50	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
51	Loop Ant.	.2Ω	3.5Ω	700001		
52	RF Coil	100Ω	4Ω	713001		Alternate Emerson Part #713006
53	Osc. Coil	2Ω	7Ω	716006		
54	Input IF	37Ω	37Ω	720001		" " " #720006
55	Output IF	39Ω	39Ω	720002		" " " #720007

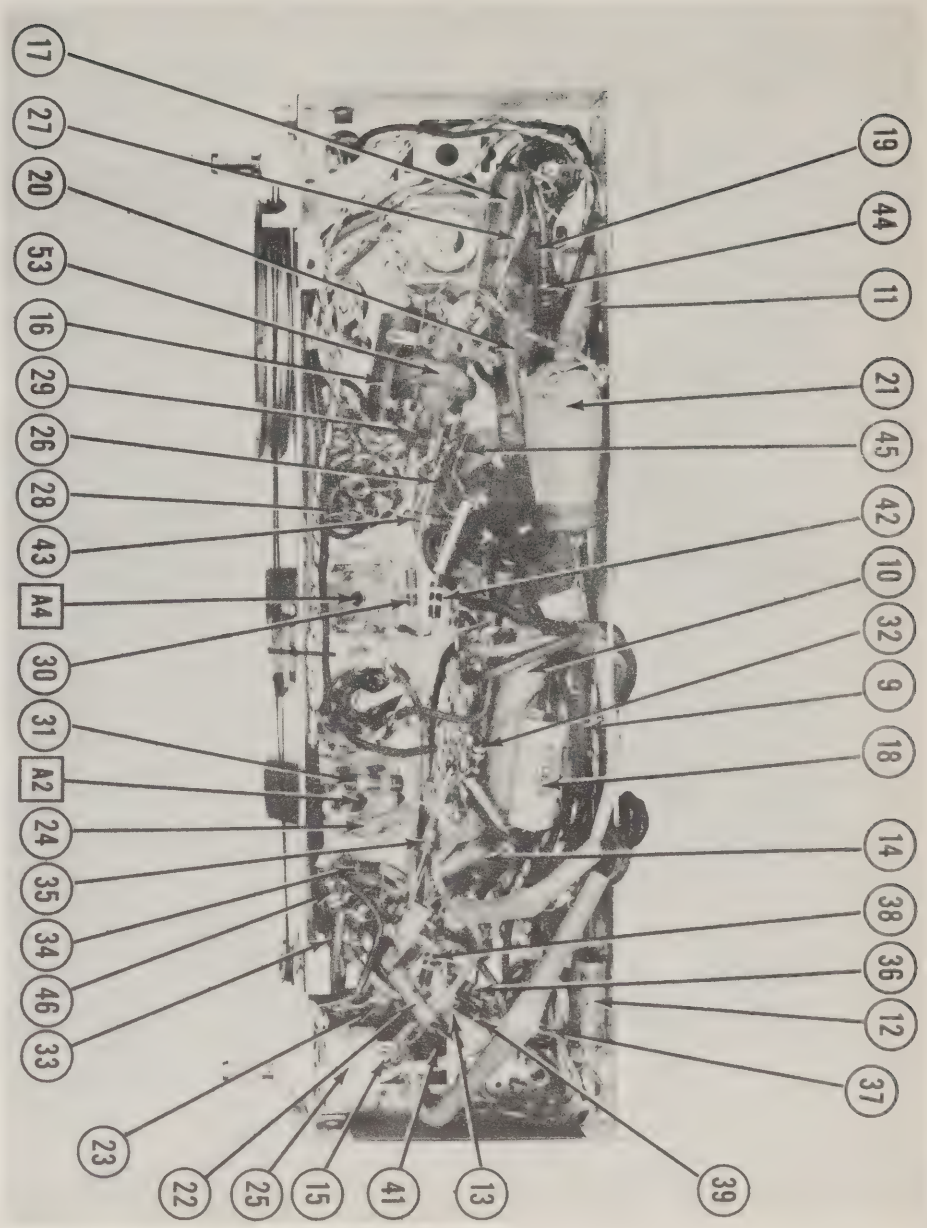
BATTERIES

ITEM No.	VOLTAGE	EMERSON PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
56	4½ V. "A"		(2)#746			2 Used in series
57	45 V. "B"			(2)#462		" " " "

MISCELLANEOUS

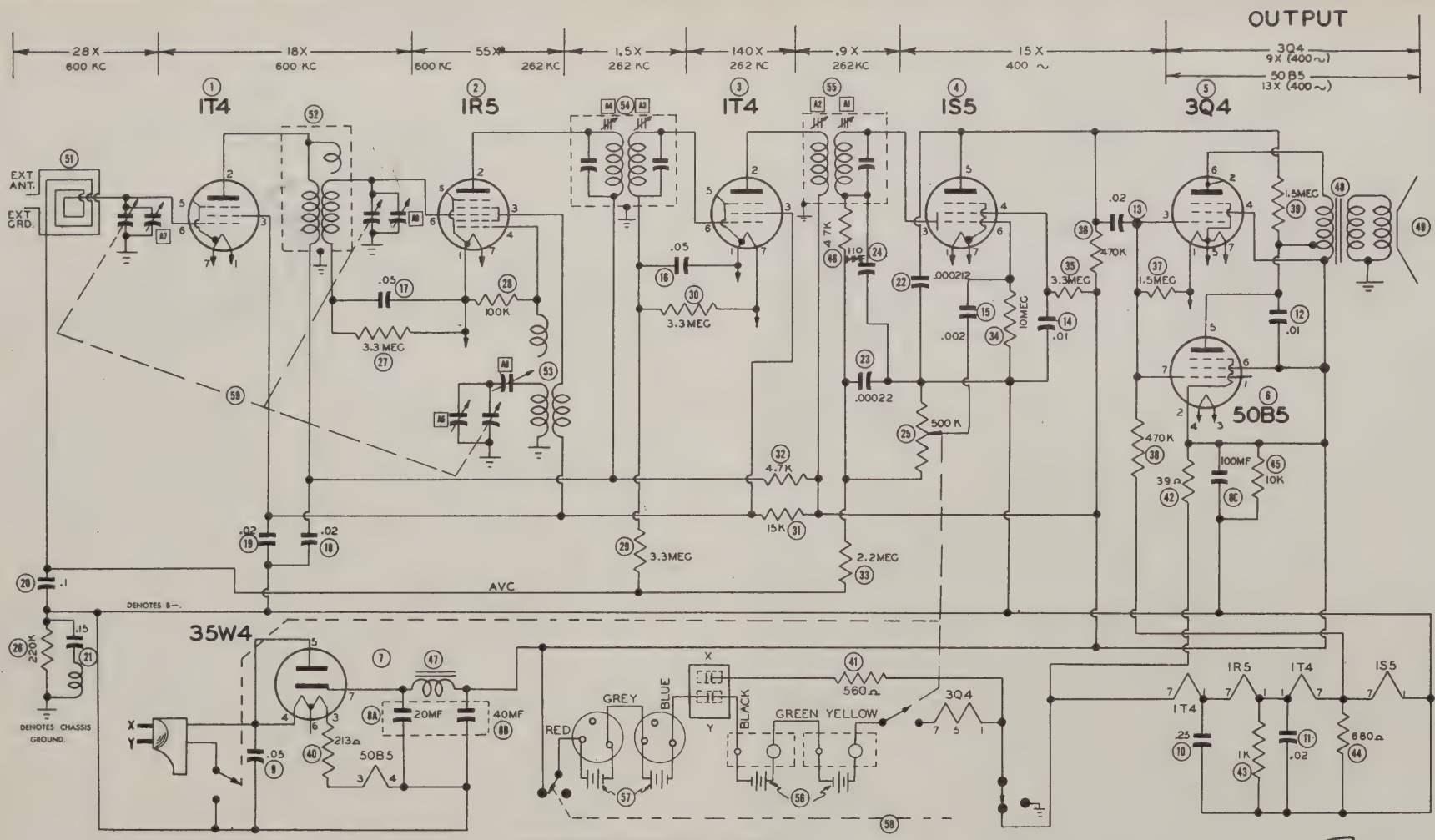
ITEM No.	PART NAME	EMERSON PART No.	NOTES
58	Switch	510270	Power Change-Over
59	3 Gang Var. Cap.	900006	22-416 MMF-each section
	Dial Glass	520000	
	Dial Pointer	525001	
	Dial Backplate	410011	
	Knob	450112	
	Cabinet	140084	
	Handle	595010	Alternate Part #450012
	Drive Shaft	280001	
	Battery Cable	585006	
	Line Cord	583006	Alternate Part #583002
	Speaker Plug	505040	Alternate Part #505048

CHASSIS—BOTTOM VIEW



EMERSON MODEL 536

EMERSON MODEL 536



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READING ON TUBE ⑤ (3Q4) TAKEN IN BATTERY POSITION

IF=262KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1T4	1.2V. DC	98V. DC	55V. DC	0V.	1.2V. DC	.2V. DC	2.5V. DC
2	1R5	2.5V. DC	98V. DC	55V. DC	1.4V. DC	2.5V. DC	.2V. DC	3.8V. DC
3	1T4	3.8V. DC	110V. DC	55V. DC	0V.	3.8V. DC	.6V. DC	4.9V. DC
4	1S5	0V.	0V.	0V.	26V. DC	60V. DC	0V.	1.2V. DC
5	3Q4	6.3V. DC	92V. DC	1V. DC	93V. DC	78V. DC	92V. DC	9.2V. DC
6	50B5	.4V. DC	6.6V. DC	30 V. AC	0V.	100V. DC	110V. DC	-4V. DC
7	35W4	80V. DC	0V.	85 V. AC	117V. AC	117V. AC	110V. AC	140V. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1T4	100KΩ	95 KΩ	105KΩ	INF.	∗	1.8MEG.	∗
2	1R5	∗	95 KΩ	100 KΩ	100 KΩ	∗	3.3MEG.	∗
3	1T4	∗	90 KΩ	105 KΩ	INF.	∗	3.3 MEG.	∗
4	1S5	∗	INF.	500 KΩ	3.4 MEG.	560 KΩ	10 MEG.	∗
5	3Q4	∗	90 KΩ	320 KΩ	90 KΩ	∗	90KΩ	∗
6	50B5	320KΩ	70 Ω	43 Ω	0Ω	90 KΩ	90 KΩ	320KΩ
7	35W5	420 KΩ	INF.	240Ω	270Ω	270Ω	260Ω	90 KΩ

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

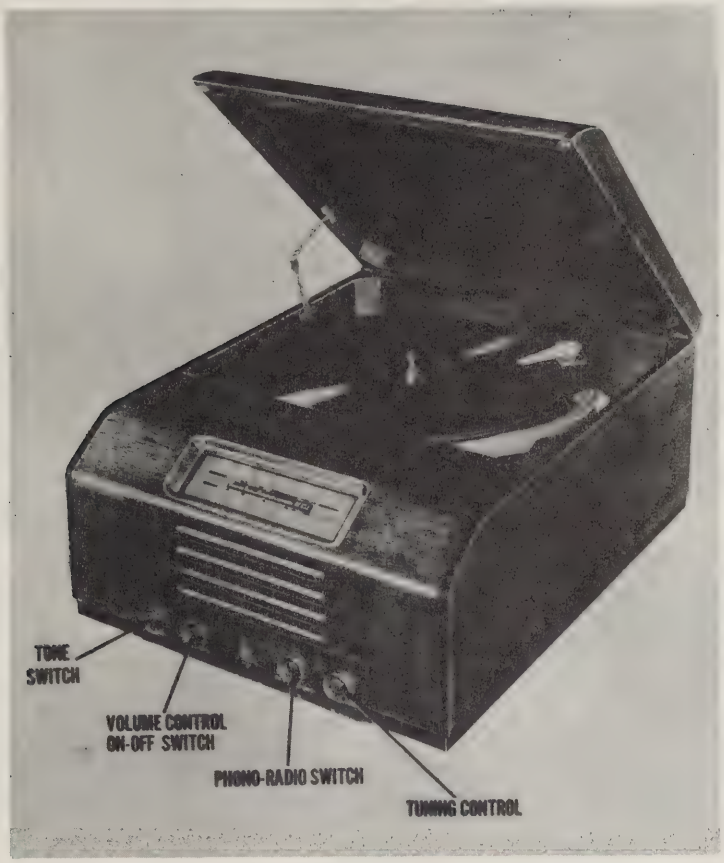
DIAL CORD DRIVE

4711-14

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis during stage gain measurements.

1 - DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

EMERSON
MODEL 546



EMERSON
MODEL 546

EMERSON MODEL 546

TRADE NAME	Emerson, Model 546 (Ch. 120049)
MANUFACTURER	Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York, N.Y.
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1620KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD. capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 7 (grid) 12BE6. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to ext. ant. lead. Low side to ext. ground lead.	1620KC	"	"	A5	Adjust for maximum output.
3	200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove four push on type control knobs.
2. Remove four Phillips head screws holding chassis mounting board to bottom of cabinet.
3. Remove three Phillips head screws holding chassis to mounting board.
4. Remove phono-motor plug.
5. Remove chassis from cabinet.
6. Remove phono pickup plug from chassis.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

EMERSON MODEL 546

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	925011	EZ5515	2N521	M-2x50-150	TA-505	PRSA150-50-50	Filter - Red
B	50	150							" - Green
7	.05	400	920030	DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
8	.2	200	920050	DT4P2	TP429	S-4-2	TC-2	484-.2	Line Isolation
9	.002	600	920010	DT6D2	TP405	S-6-002	TC-22	684-002	Output Plate Bypass
10	.002	600	920010	DT6D2	TP405	S-6-002	TC-22	684-002	Tone Compensation
11	.02	400	920020	DT4S2	TP423	S-4-02	TC-12	484-02	Audio Coupling
12	.0005	600	920240	DT6T5	TP403	S-6-0005	TC-35	1468-0005	Audio Plate Bypass
13	.002	600	920010	DT6D2	TP405	S-6-002	TC-22	684-002	Audio Coupling
14	.05	400	920030	DT4S5	TP426	S-4-05	TC-15	484-05	Phono Isolation
15	.1	200	920040	DT4P1	TP428	S-4-1	TC-1	484-.1	AVC Filter
16	.05	400	922101	DT4S5	TP426	S-4-05	TC-15	484-05	Phono Motor Isolation
17	110	500	910010	5W5T1	MC235	M0.5-31	1FM-31	1468-0001	Diode Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	1	390190	UM156	D11-133	AM-58-S	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 18A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
19	15 Meg.	½	397000	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
20	3.3 Meg.	½	351330	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
21	22KΩ	½	340810	BTS-22K	Red-Red-Or. Oscillator Grid
22	150Ω	½	340290	BW-½-150	Br.-Grn.-Br. IF Cathode
23	15 Meg.	½	397000	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
24	470KΩ	½	351130	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
25	470KΩ	½	351130	BTS-470K	Yl.-Vi.-Yl. Output Grid
26	150Ω	½	340290	BW-½-150	Br.-Grn.-Br. Output Cathode
27	1000Ω	1	370490	BTA-1000	Br.-Blk.-Red Filter
28	2.2 Meg.	½	351290	BTS-2.2 Meg.	Red-Red-Grn. Phono Shunt
29	1 Meg.	½	551210	BTS-1 Meg.	Br.-Blk.-Grn. Series Phono
30	15Ω	½	340050	BW-½-15	Br.-Grn.-Blk. Rectifier Ballast
31	10Ω	½	340010	BW-½-10	Br.-Blk.-Blk. Series Pilot Light
32	220KΩ	½	351050	BTS-220K	Red-Red-Yl. Line Isolation

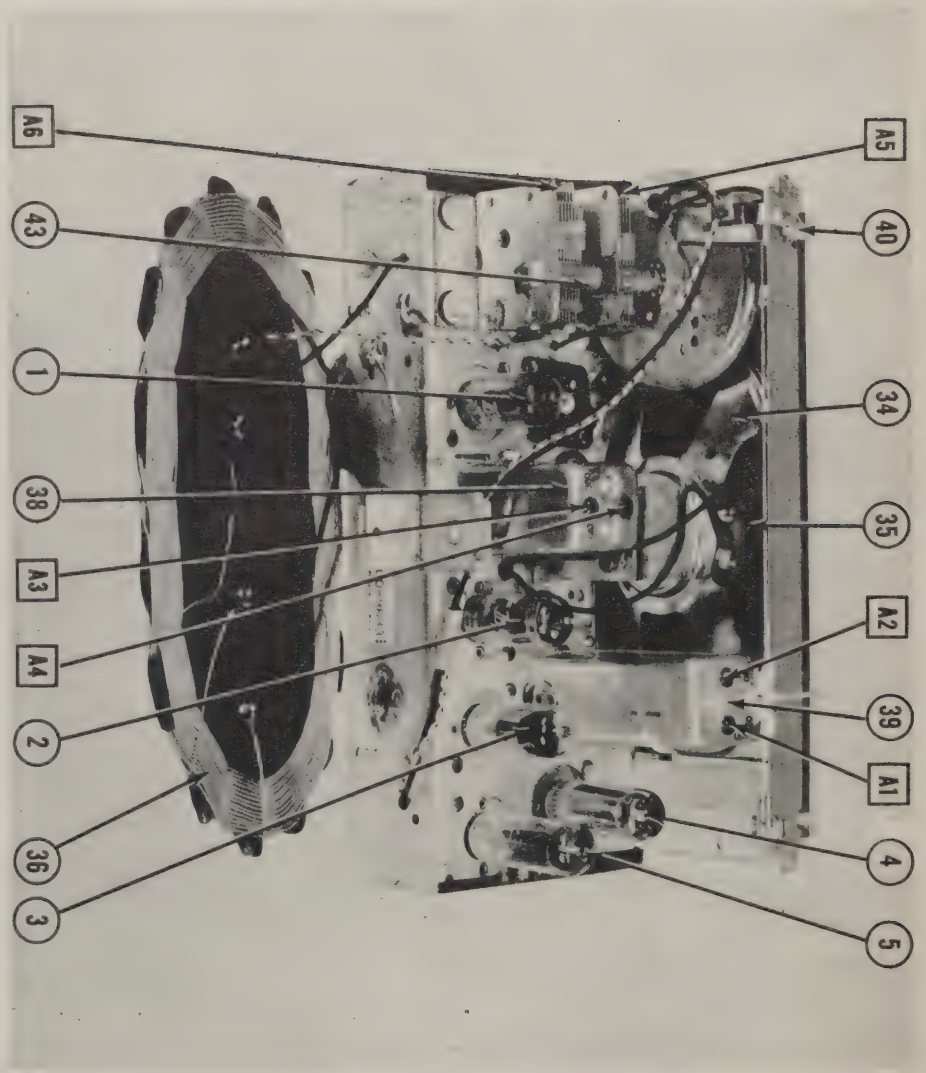
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
33	2400Ω	4.6Ω	230Ω tapped @ 9Ω	.8Ω	734080	A-3876*			*Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: EMERSON PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
34	PM	4.6Ω	180008			
	CONE DIA.	VC DIA.				
35	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

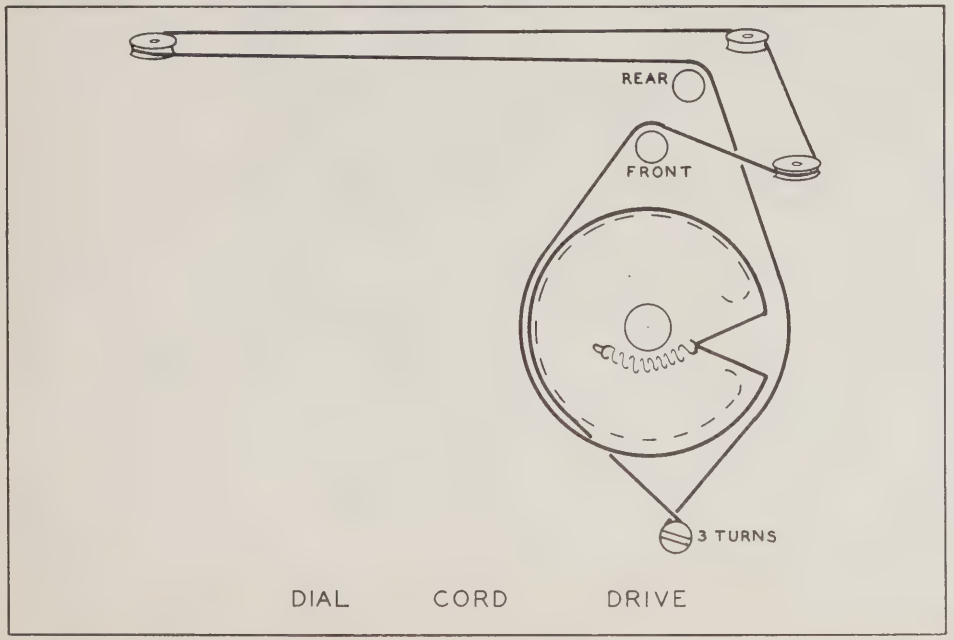
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	REPLACEMENT DATA MEISSNER PART No.	
36	Loop Ant.	.1Ω	2.5Ω	700000		
37	Osc. Coil	.5Ω	5.5Ω	716010	14-1040	Add 50 MMFD from grid to high side tuning cap.
38	Input IF	30Ω	20Ω	720380	16-6666	
39	Output IF	22Ω		720019		

DIAL LIGHT

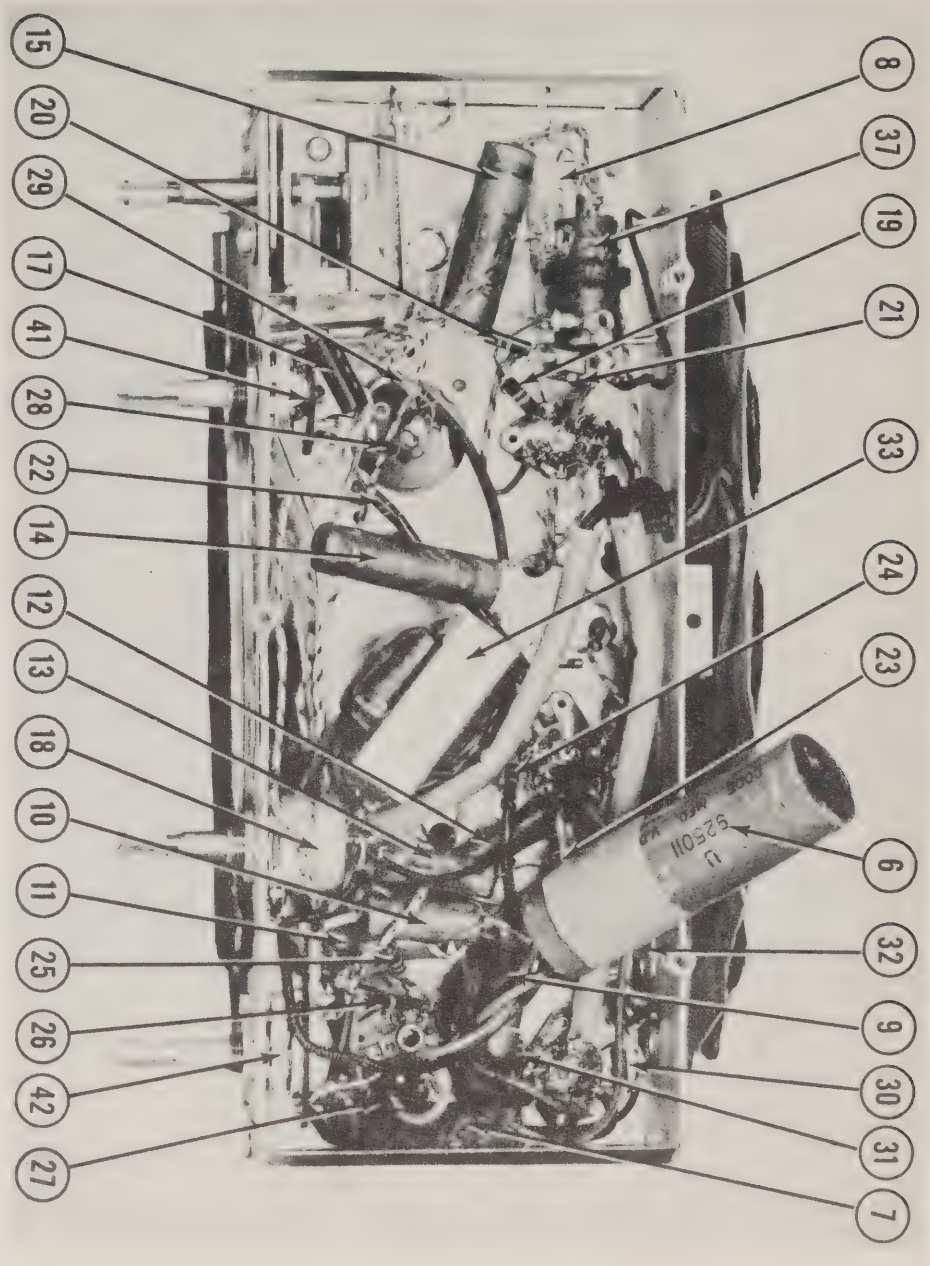
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA EMERSON PART No.		INSTALLATION NOTES
40	Bayonet	6-8	0.15	Brown	807000		Type 47

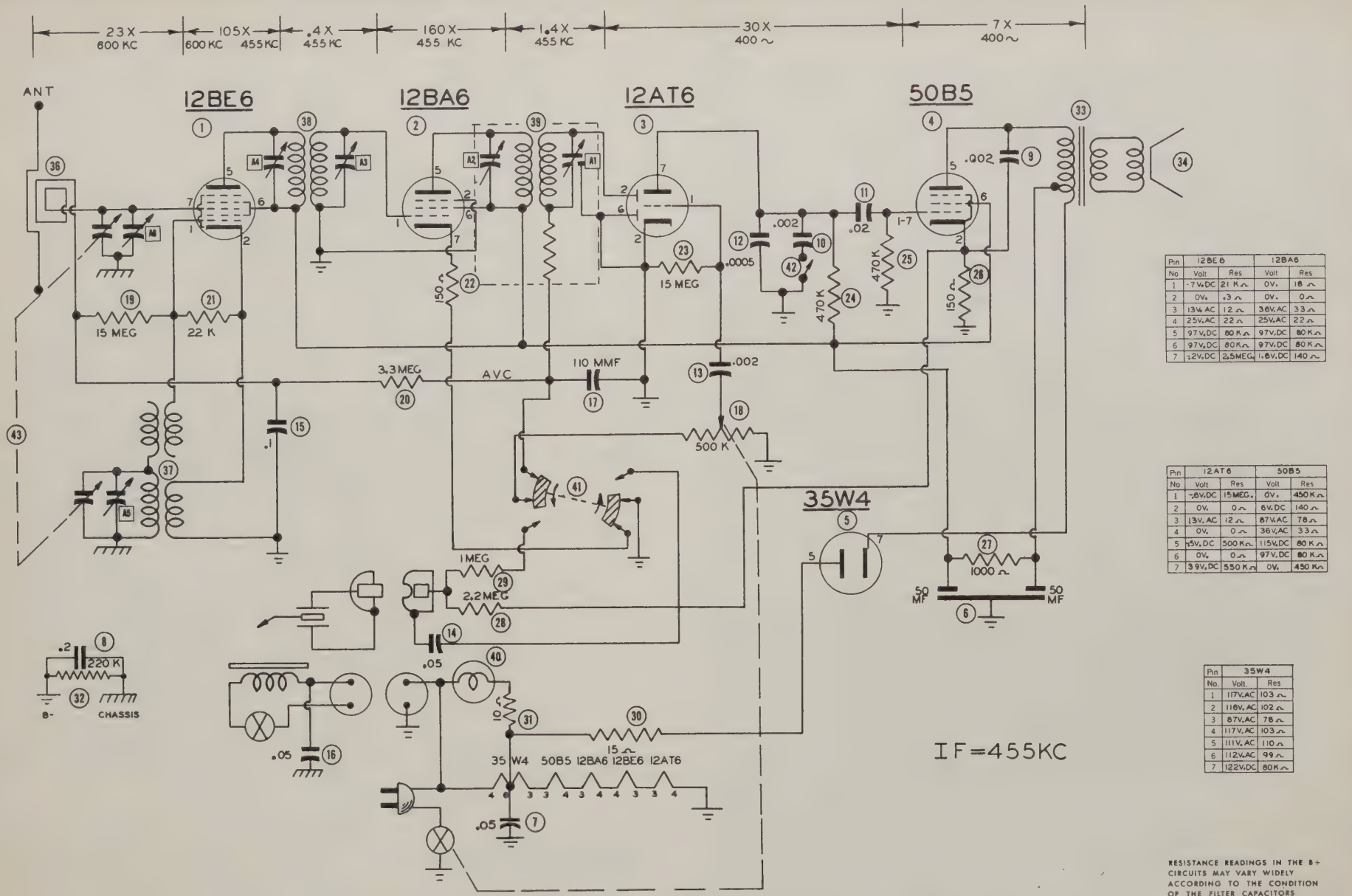
MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
41	Switch	510391	Radio-Phono
42	Switch	510120	Tone Control
43	2 Gang Var. Cap.	900270	25-382 MMF, 27-193 MMF
	Crystal Cartridge	820034	ASTATIC Type L-70-S
	Dial Glass	520450	
	Dial Backplate	520360	
	Pointer	525012	
	Knob	460470	
	Drive Shaft	280313	
	Cabinet	140086	Walnut
	"	140087	Mahogany
	Line Cord	583004	
	Socket	507215	Pilot Light
	Plug	505040	Pickup
	Socket	508010	"
	Plug & Cable	585072	Phono motor
	Record Changer	819019	



CHASSIS—BOTTOM VIEW





Pin No	12BE6 Volt	12BE6 Res	12BA6 Volt	12BA6 Res
1	-7 V.DC	21 KΩ	0V.	18 Ω
2	0V.	.3 Ω	0V.	0 Ω
3	134 AC	12 Ω	36V.AC	33 Ω
4	25V.AC	22 Ω	25V.AC	22 Ω
5	97 V.DC	80 KΩ	97V.DC	80 KΩ
6	97V.DC	80 KΩ	97V.DC	80 KΩ
7	-2V.DC	2.5MEG	1.8V.DC	140 Ω

Pin No	12AT6 Volt	12AT6 Res	50B5 Volt	50B5 Res
1	-8V.DC	1.5MEG.	0V.	450 KΩ
2	0V.	0 Ω	6V.DC	140 Ω
3	13V. AC	12 Ω	87V.AC	78 Ω
4	0V.	0 Ω	36V.AC	33 Ω
5	75V.DC	500 KΩ	115V.DC	80 KΩ
6	0V.	0 Ω	97V.DC	80 KΩ
7	39V.DC	550 KΩ	0V.	450 KΩ

Pin No.	35W4 Volt	35W4 Res
1	117V.AC	103 Ω
2	116V. AC	102 Ω
3	87V.AC	78 Ω
4	117V.AC	103 Ω
5	111V. AC	110 Ω
6	112V.AC	99 Ω
7	122V.DC	80 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

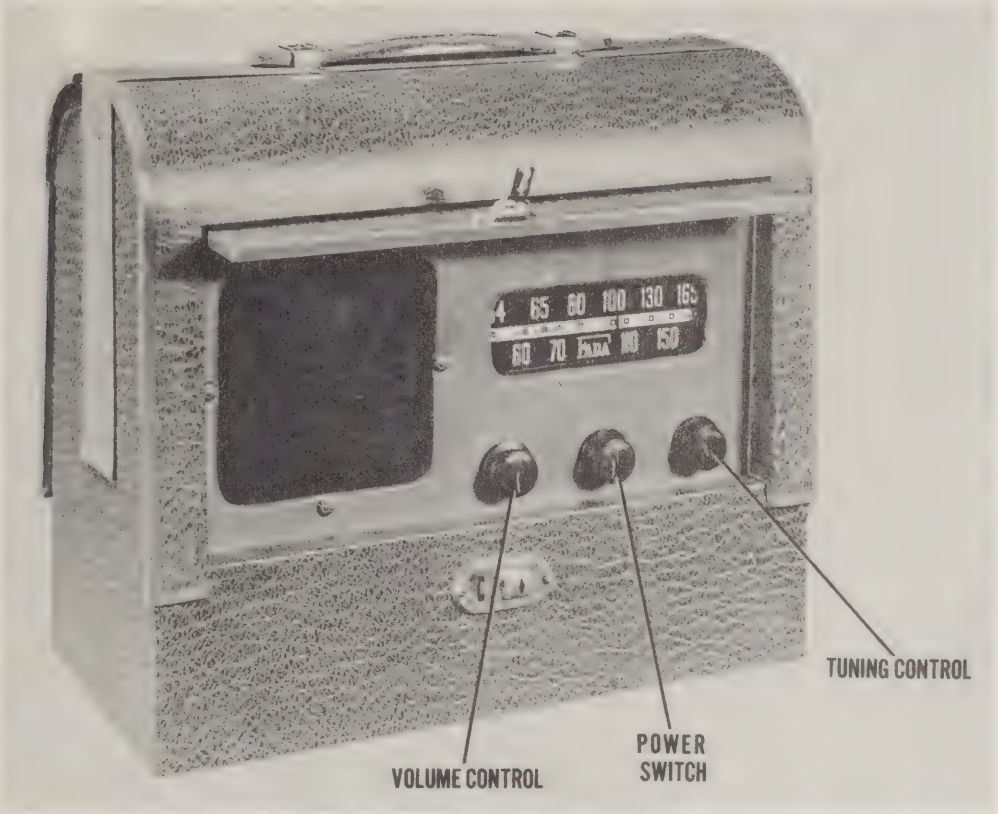
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4711-15

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FADA
MODEL P82 (BATTERY OPERATED)



FADA
MODEL P82 (BATTERY OPERATED)

FADA MODEL P82

TRADE NAME	Fada, Model P82
MANUFACTURER	Fada Radio & Electric Co., Inc., 30-20 Thomson Ave., Long Island City 1, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q5GT Power Output, 117Z3 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC or 9 Volts "A" Supply & 90 Volt "B" Supply
RATING	.160 Amp. @ 117 Volts AC or 55MA @ 9.2 Volts DC & 13MA @ 95 Volts DC
TUNING RANGE—BROADCAST	538-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	456KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy ant. to 200 MMF to reduce hum modulation.
2		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6,A7	"
4		"	600KC	"	"	A8	Rock tuning cap and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made. Install in cabinet.
5		"	1400KC	"	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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SET #21 DATE 7/47 FOLDER #4711-16

PARTS LIST AND DESCRIPTIONS

FADA MODEL P51

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1T4	1T4	6AR	
2	Converter	1R5	1R5	7AT	
3	IF Amp.	1T4	1T4	6AR	
4	Det.-AVC-AF	1S5	1S5	6AU	
5	Power Output	3Y5GT	3Y5GT	7AP	
6	Rectifier	117Z3	117Z3	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	22.11	EZ42215	2N511	DSB-403020-150	TA-430	PRSA150-40-20	Filter - Blue
B	30	150			TC45		UT-201	PRS150-30	" - Red
C	20	150							" - Yellow
8A	150	15	22.9	BRH151		M-250-15	UHC-215		Filament Bypass
B	150	15		BRH151		M-250-15	UHC-215		" "
9	.05	400	12.12	DT4S5	TP426	S-4-05	TC-15	484-05	Line Bypass
10	.1	200	12.14	DT4P1	TP428	S-4-1	TC-1	484-.1	Filament Bypass
11	.1	200	12.14	DT4P1	TP428	S-4-1	TC-1	484-.1	" "
12	.002	600	12.2	DT6D2	TP405	S-6-002	TC-22	684-002	Output Plate Bypass
13	.002	600	12.2	DT6D2	TP405	S-6-002	TC-22	684-002	Audio Coupling
14	.005	600	12.25	DT6D5	TP408	S-6-005	TC-25	684-005	" "
15	.1	200	12.14	DT4P1	TP428	S-4-1	TC-1	484-.1	Audio Screen Bypass
16	.01	400	12.5	DT4S1	TP421	S-4-01	TC-11	484-01	AVC Filter
17	.005	400		DT6D5	TP408	S-6-005	TC-25	684-005	IF Grid Filter
18	.01	400	12.5	DT4S1	TP421	S-4-01	TC-11	484-01	Osc. Anode Coupling
19	.05	200	12.11	DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
20	.25	200	12.17	DT4P25	TP430	S-4-25	TC-2	484-.25	Line Isolation
21	.15	200		DT4P15	TP417	S-4-15		484-.15	Screen Bypass *
22	50	500	17.20	5W5Q5	MC225	MO.5-45	1FM-45	1468-00005	Audio Plate Bypass
23	220	500	17.22	5W5T2	MC237	MO.5-322	1FM-32	1468-0002	Diode Filter
24	100	500	17.21	5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Osc. Grid Capacitor
25	220	500	17.22	5W5T2	MC237	MO.5-322	1FM-32	1468-0002	RF Coupling
26	10	500		5W5Q1	MC215	MO.5-41	1FM-41	1468-00001	Fixed Trimmer*

*Note used in all models.

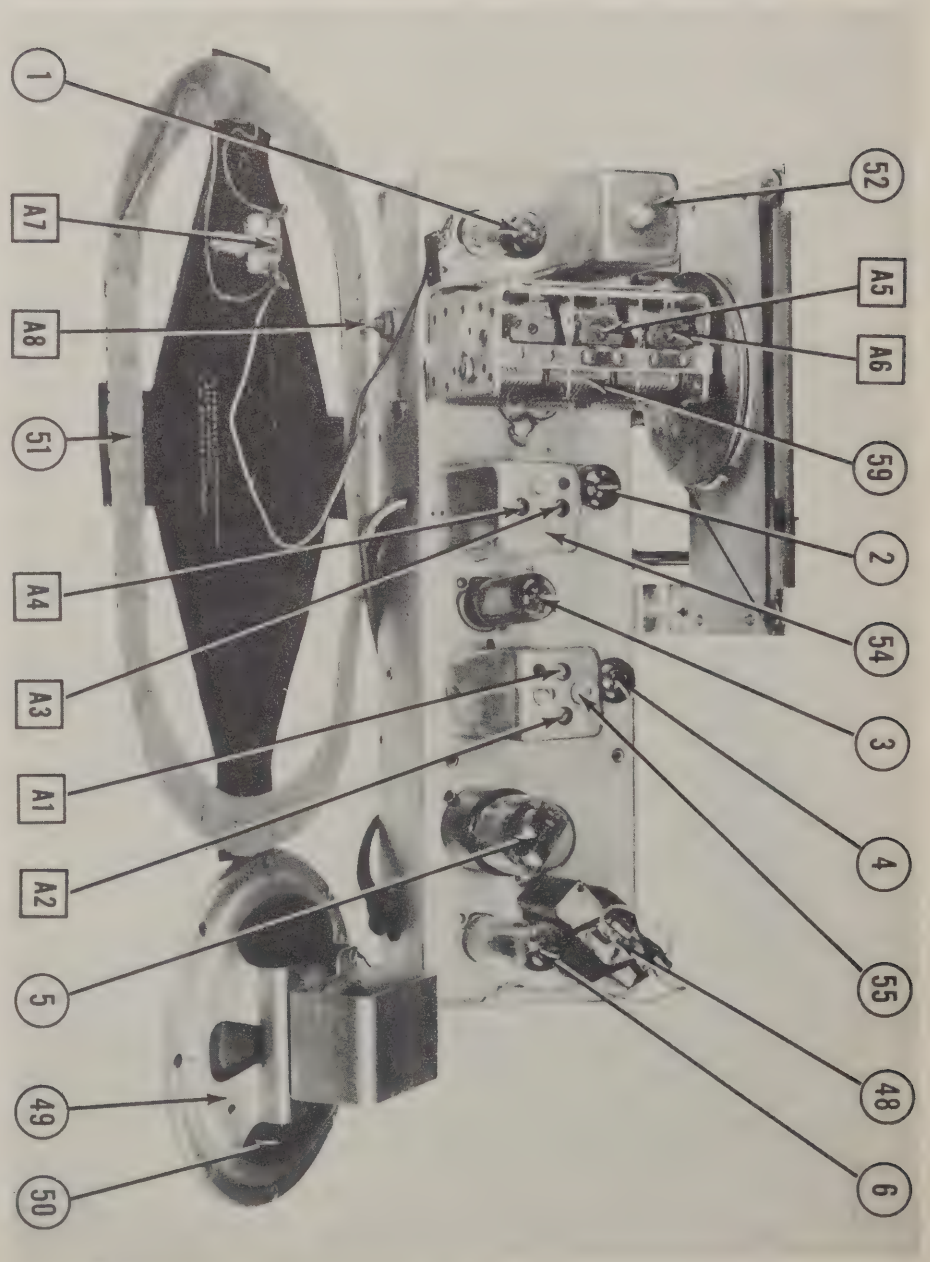
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
27A	500KΩ	1	52.8	MR48	D13-133	M-66-2	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 27A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
28	2.2 Meg.	½	32.34	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
29	6800Ω	½	32.10	BTS-6800	Blue-Gray-Red RF Screen Dropping
30	220KΩ	½	32.18	BTS-220K	Red-Red-Yl. Line Isolation
31	2.2 Meg.	½	32.34	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
32	68KΩ	½	32.16	BTS-68K	Blue-Gray-Or. Oscillator Grid
33	6800Ω	½	32.10	BTS-6800	Blue-Gray-Red Converter Screen Dropping
34	3.9 Meg.	½	32.36	BTS-3.9 Meg.	Or.-White-Grn. IF Grid
35	2.2 Meg.	½	32.34	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
36	6.8 Meg.	½	32.46	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
37	3.9 Meg.	½	32.36	BTS-3.9 Meg.	Or.-White-Grn. AF Screen Dropping
38	470KΩ	½	32.20	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
39	1 Meg.	½	32.38	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
40	30Ω	1	117.1	BW-1-33	Or.-Blk.-Blk. Rectifier Ballast
41	1100Ω	1	32.37	BTA-1200	Br.-Br.-Red Filter
42	220Ω	½		BW-½-220	Red-Red-Br. Filter-See Note 1

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FADA PART No.	IRC PART No.	
43	1850Ω	10	117.9	ABA-2000	Filament String-See Note 2
44	680Ω	½	32.31	BTS-680	Blue-Gray-Br. Filament String
45	2200Ω	½	32.56	BTS-2200	Red-Red-Red Filament String
46	1000Ω	½	32.8	BTS-1000	Br.-Blk.-Red Filament String
47	1000Ω	½	32.8	BTS-1000	Br.-Blk.-Red " "

Note 1-Not used in all models.
Note 2-On IRC replacement set slider 1850Ω from one end.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FADA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
48	6500Ω	3.1Ω	730Ω	.6Ω	42.3	A-3878	T22S47		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			FADA PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
49	PM	3.1Ω	107.6	Mod. P5-X		
	CONE DIA.	VC DIA.				
50	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	FADA PART No.	MEISSNER PART No.	
51	Loop Ant.		1.2Ω	37.26		
52	RF Coil	80Ω	7Ω	37.38	14-7558	
53	Osc. Coil	.3Ω	3Ω	37.35	14-1040	
54	Input IF	13Ω	13.5Ω	37.27	16-6658	
55	Output IF	26Ω	25Ω	37.33	16-6660	

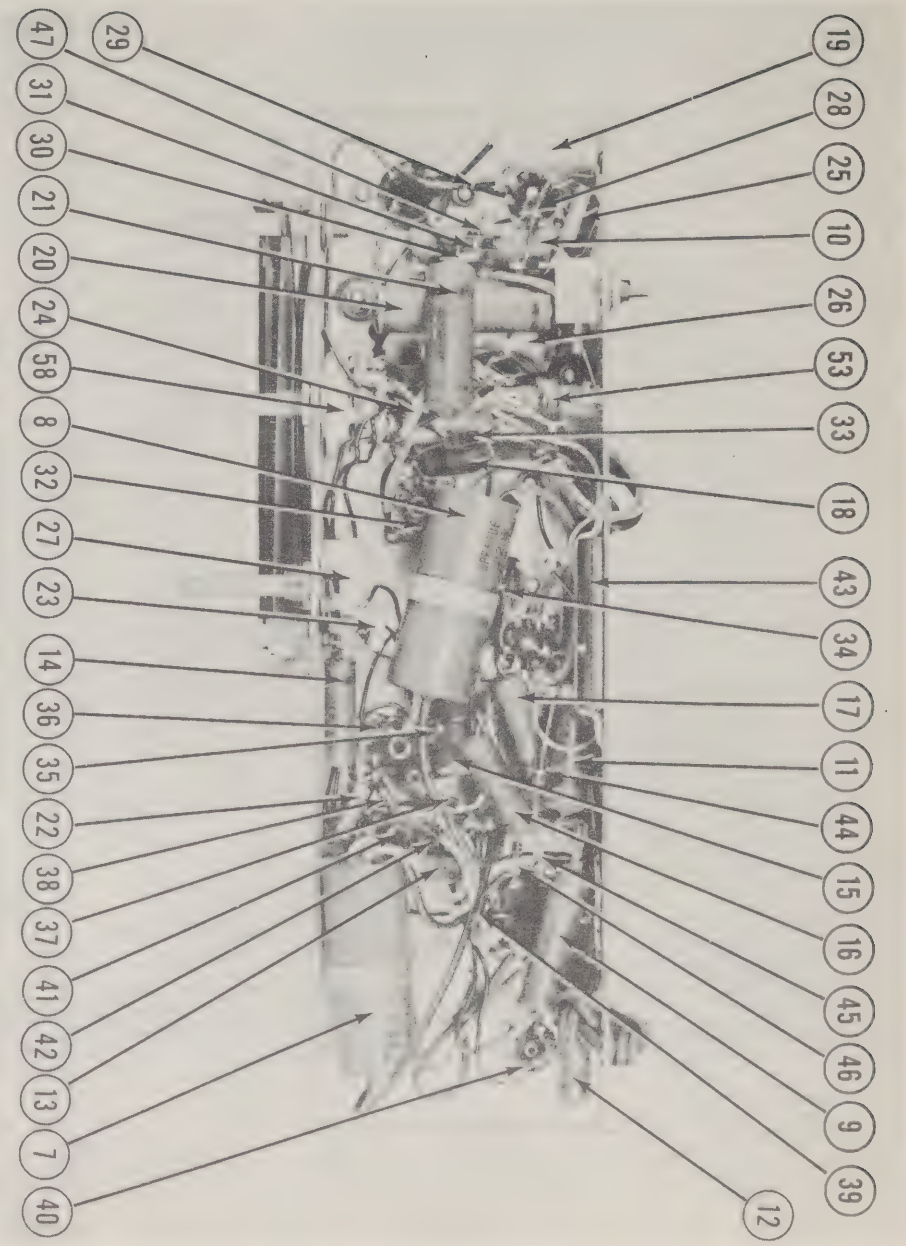
BATTERIES

ITEM No.	VOLTAGE	FADA PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
56	4½ V. "A"		#740			Two used in series.
57	45 V. "B"			482		Two used in series.

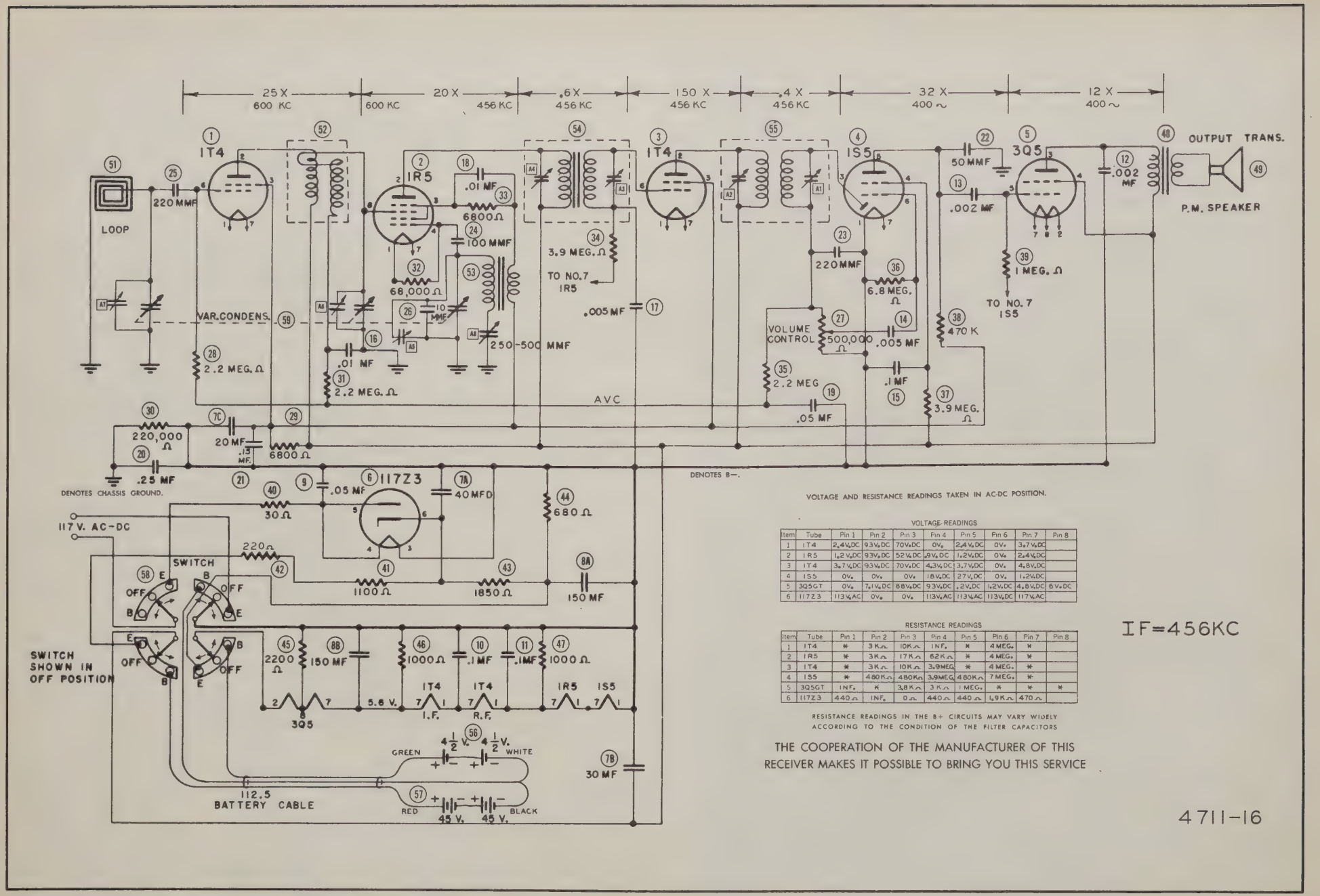
MISCELLANEOUS

ITEM No.	PART NAME	FADA PART No.	NOTES
58	Switch	47.5	Power Change-Over
59	3 Gang Var. Cap	27.10	27-442 MMF-each section

CHASSIS—BOTTOM VIEW



FADA MODEL P82



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1T4	2.4 V. DC	93 V. DC	70 V. DC	0 V.	2.4 V. DC	0 V.	3.7 V. DC	
2	1R5	1.2 V. DC	93 V. DC	52 V. DC	.9 V. DC	1.2 V. DC	0 V.	2.4 V. DC	
3	1T4	3.7 V. DC	93 V. DC	70 V. DC	4.3 V. DC	3.7 V. DC	0 V.	4.8 V. DC	
4	1S5	0 V.	0 V.	0 V.	18 V. DC	27 V. DC	0 V.	1.2 V. DC	
5	3Q5GT	0 V.	7.1 V. DC	88 V. DC	93 V. DC	.2 V. DC	1.2 V. DC	4.8 V. DC	8 V. DC
6	117Z3	113 V. AC	0 V.	0 V.	113 V. AC	113 V. AC	113 V. DC	117 V. AC	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1T4	*	3 K Ω	10 K Ω	INF.	*	4 MEG.	*	
2	1R5	*	3 K Ω	17 K Ω	62 K Ω	*	4 MEG.	*	
3	1T4	*	3 K Ω	10 K Ω	3.9 MEG.	*	4 MEG.	*	
4	1S5	*	480 K Ω	480 K Ω	3.9 MEG.	480 K Ω	7 MEG.	*	
5	3Q5GT	INF.	*	3.8 K Ω	3 K Ω	1 MEG.	*	*	*
6	117Z3	440 Ω	INF.	0 Ω	440 Ω	440 Ω	1.9 K Ω	470 Ω	

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IF=456KC

4711-16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc. that an absolute reading is impractical. AVC is shorted to B- during stage gain measurements.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

GLOBE
MODEL 517

GLOBE
MODEL 517

GLOBE MODEL 517

TRADE NAME	Globe, Model 517
MANUFACTURER	Globe Electronics, Inc., 225 W. 17th St., New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50L6GT Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1720KC RATING .275 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to front stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to chassis.	1720KC	"	"	A3	Adjust for maximum output.
3	200MMFD	"	1400KC	Tune for maximum output.	"	A4	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove two control knobs by loosening set screws.
2. Remove three hex head screws holding chassis in cabinet.
3. Remove two Phillips head screws and two wood screws holding switch.
4. Remove chassis from cabinet.
5. Unsolder phono-pickup leads from terminal strip.
6. Unsolder phono-motor leads from terminal strip.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GLOBE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	14B6	14B6	9W	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Y4	35Y4	5AJ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GLOBE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		BRD3515	2N520	M-5030-150	TA-530	PRSA150-50-30	Filter - Red
B	30	150						"	- Blue
7	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
8	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Output Plate Bypass
9	.1	400		DT4P1	TP428	S-4-1	TC-1	484-.1	Bias Filter
10	.02	400		DT4S2	TP423	S-4-02	TC-12	484-02	Audio Coupling
11	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	" "
12	.02	400		DT4S2	TP423	S-4-02	TC-12	484-02	IF Screen Bypass
13	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
14	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	RF Bypass Pwr. Supp.
15	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Ext. Ant. Coupling
16	200	500		5W5T2	MC237	M0.5-32	1FM-32	1468-0002	Audio Plate Bypass
17	200	500		5W5T2	MC237	M0.5-32	1FM-32	1468-0002	Diode Filter
18	200	500		5W5T2	MC237	M0.5-32	1FM-32	1468-0002	IF Coupling
19	200	500		5W5T2	MC237	M0.5-32	1FM-32	1468-0002	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GLOBE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	500K	1		MK401	D13-133	AM-60-2	Volume Control
B	Shaft			Not Req.	E	KS8-3	Attach to 20A per instructions
C	Switch			M26	41	SW-A	" " " " "

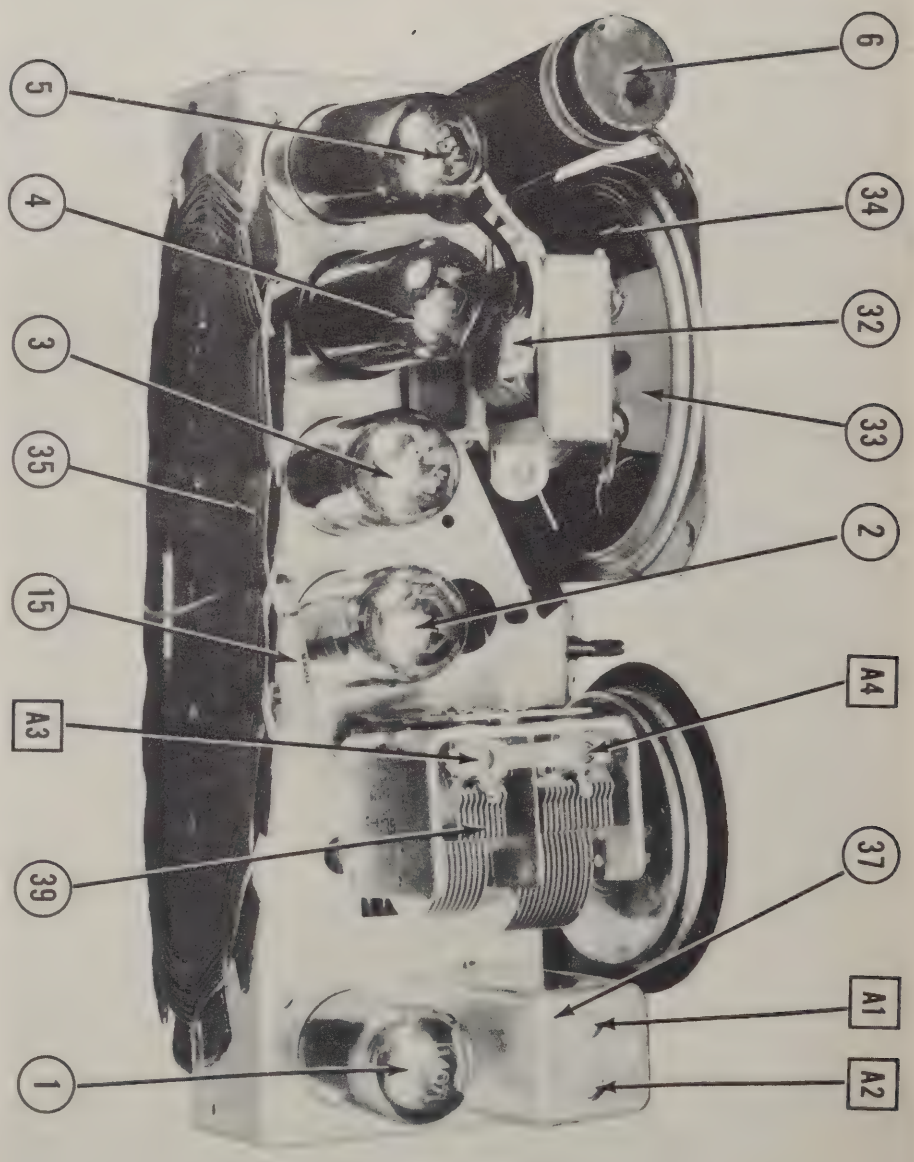
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GLOBE PART No.	IRC PART No.	IDENTIFICATION CODES
21	8200Ω	½		BTS-8200	Gray-Red-Red Oscillator Grid
22	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Output Grid Bias
23	1.5 Meg.	½		BTS-1.5 Meg	Br.-Grn.-Grn. AVC Network
24	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Phono Shunt
25	68KΩ	½		BTS-68K	Blue-Gray-Or. IF Screen Dropping
26	20KΩ	½		BTS-22K	Red-Blk.-Or. IF Plate Load
27	68KΩ	½		BTS-68K	Blue-Gray-Or. Diode RF Filter
28	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
29	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
30	27KΩ	½		BTS-27K	Red-Vi.-Or. Output Grid
31	1200Ω	1		BTA-1200	Br.-Red-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GLOBE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
32	1800Ω	3.1Ω	170Ω	.6Ω		A-3878	T2S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

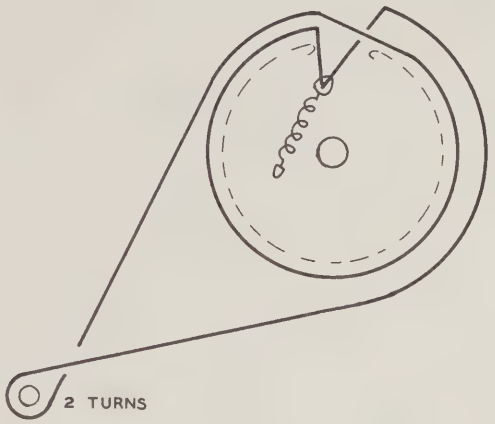
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GLOBE PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
33	PM	3.1Ω				
	CONE DIA.	VC DIA.				
34	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GLOBE PART No.	MEISSNER PART No.	
35	Loop Ant.	.1Ω	1.2Ω			
36	Osc. Coil		6Ω		14-1040	
37	Input IF	16Ω	16Ω			

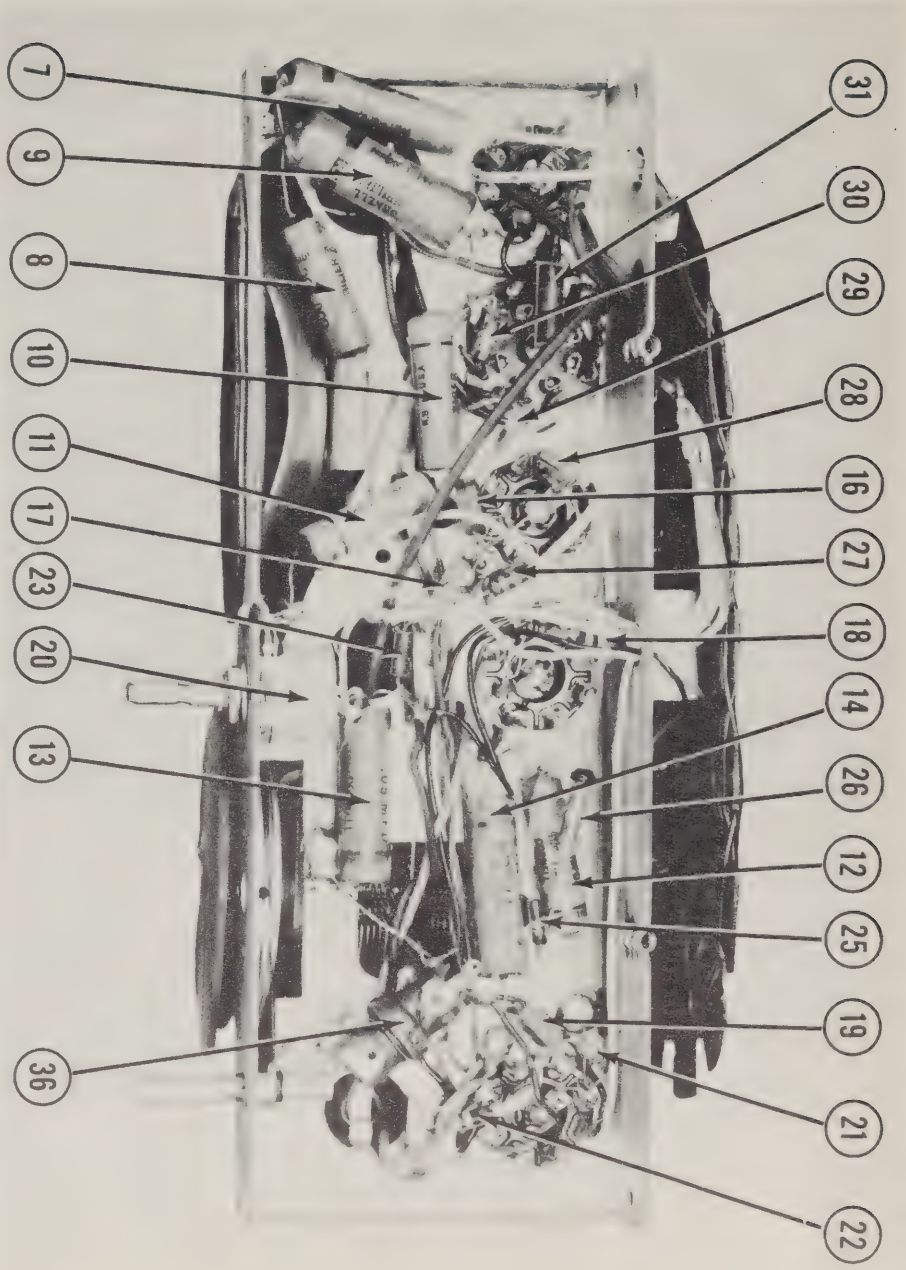
MISCELLANEOUS

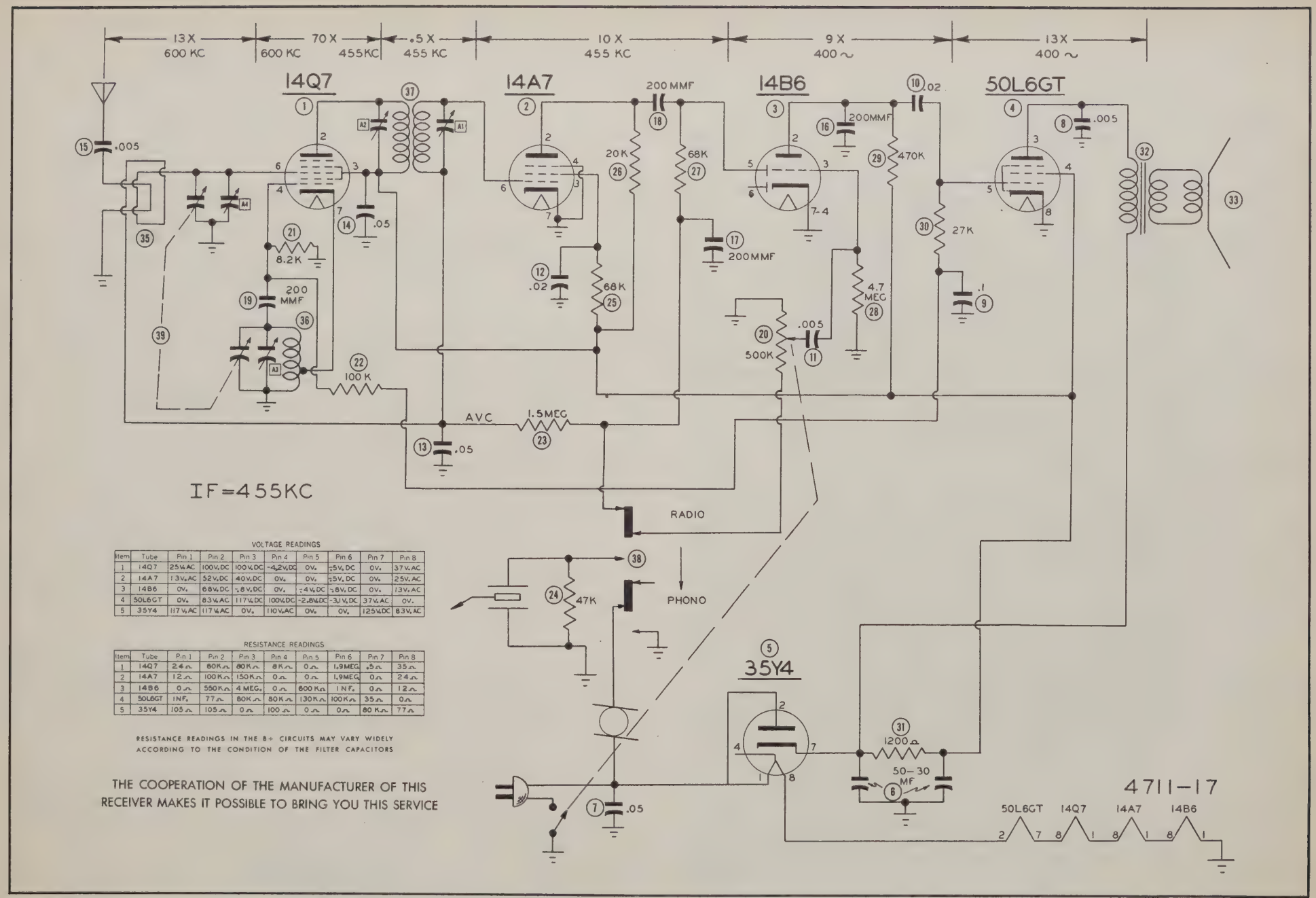
ITEM No.	PART NAME	GLOBE PART No.	NOTES
38	Switch		Radio-Phono
39	2 Gang Var. Cap.		24-478 MMF, 33-199 MMF
	Crystal Cartridge		ASTATIC Type L-26-A



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25V.AC	100V.DC	100V.DC	-4.2V.DC	0V.	-5V. DC	0V.	37V.AC
2	14A7	13V.AC	52V.DC	40V.DC	0V.	0V.	-5V. DC	0V.	25V.AC
3	14B6	0V.	68V.DC	-.8V.DC	0V.	-4V.DC	-.8V. DC	0V.	13V.AC
4	50L6GT	0V.	83V.AC	117V.DC	100V.DC	-2.8V.DC	-3.1V.DC	37V.AC	0V.
5	35Y4	117V.AC	117V.AC	0V.	110V.AC	0V.	0V.	125V.DC	83V.AC

RESISTANCE READINGS

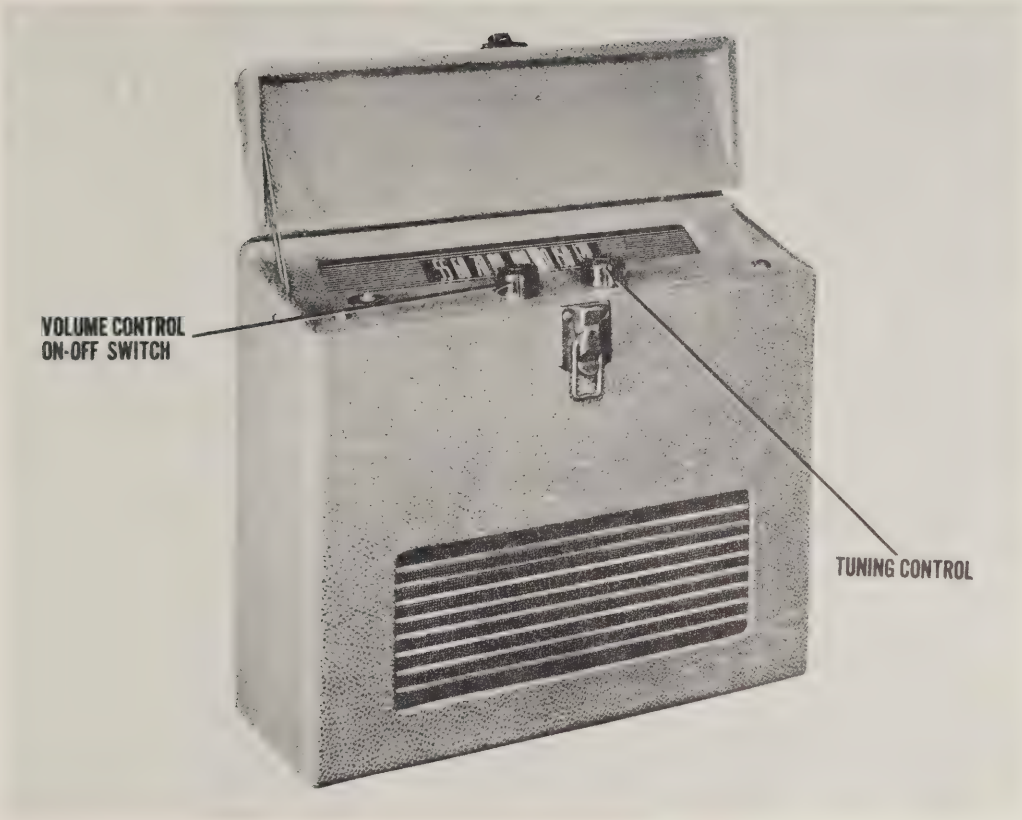
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24Ω	80KΩ	80KΩ	8KΩ	0Ω	1.9MEG.	.5Ω	35Ω
2	14A7	12Ω	100KΩ	150KΩ	0Ω	0Ω	1.9MEG.	0Ω	24Ω
3	14B6	0Ω	550KΩ	4 MEG.	0Ω	600KΩ	INF.	0Ω	12Ω
4	50L6GT	INF.	77Ω	80KΩ	80KΩ	130KΩ	100KΩ	35Ω	0Ω
5	35Y4	105Ω	105Ω	0Ω	100Ω	0Ω	0Ω	80KΩ	77Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



GLOBE
MODEL 500

GLOBE
MODEL 500

GLOBE MODEL 500

TRADE NAME	Globe, Model 500
MANUFACTURER	Globe Electronics, Inc., 225 W. 17th St., New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 7A8 Converter, 7C7 IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1750KC RATING .260 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal gen. and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. open.completely.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1750KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

GLOBE MODEL 50[illegible]

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GLOBE PART No.	STANDARD REPLACEMENT		
1	Converter	7A8	7A8	8U	
2	IF Amp.	7C7	7C7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	35A5	35A5	6AA	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	GLOBE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	30	150		BRD3315	2N513	M-2x30-150	TA-230	PRSA150-20-30	Filter - Red
B	20	150							" - Blue
7	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
8	.02	200		DT4S2	TP423	S-4-02	TC-12	484-02	Output Plate Bypass
9	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
10	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	" "
11	.05	200		DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
12	250	500		5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Audio Plate Bypass
13	120	500		5W5T1	MC235	MO.5-31	1FM-31	1468-0001	IF Bypass Vol. Cont.
14	75	500		5W5Q75	MC230	MO.5-475	1FM-475	1468-000075	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	GLOBE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 15A per instructions
C	Switch			M26	41	SW-A	" " " " "

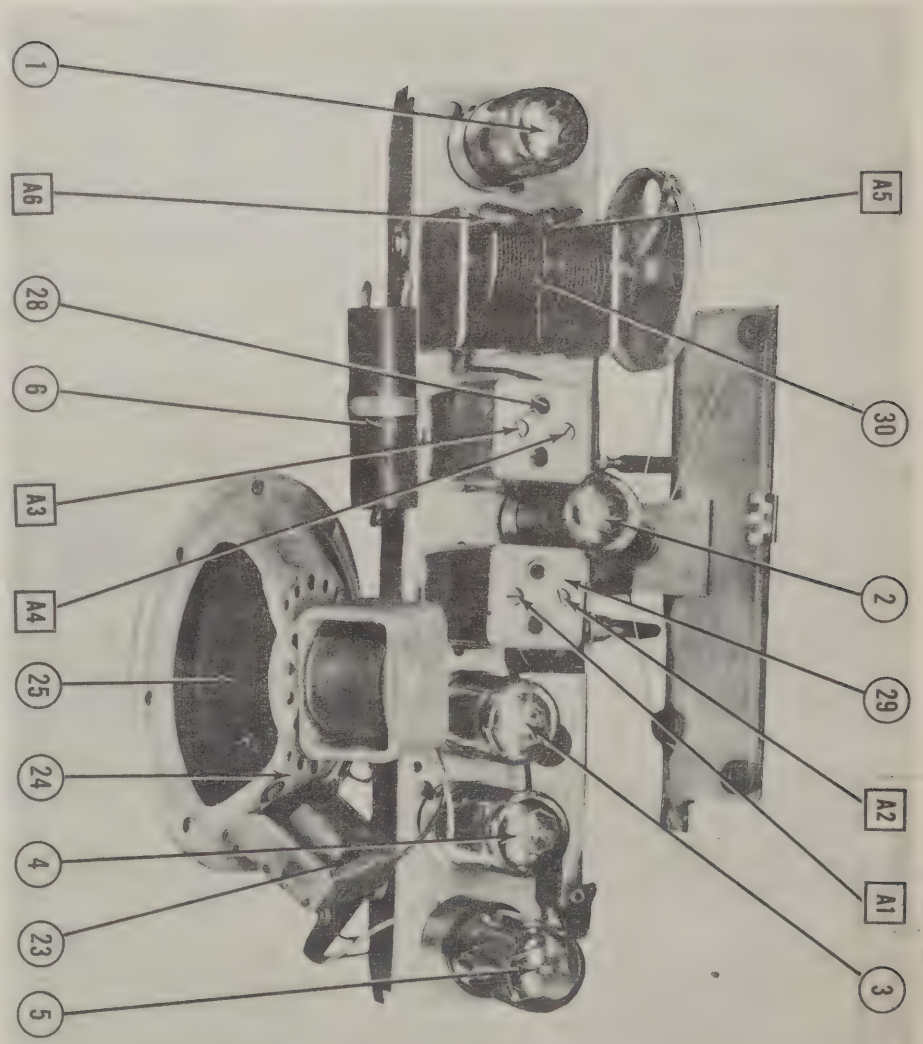
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GLOBE PART No.	IRC PART No.	
16	47KΩ	½		BTS-47K	Yl.-Vl.-Or. Oscillator Grid
17	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
18	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
19	470KΩ	½		BTS-470K	Yl.-Vl.-Yl. AF Plate Load
20	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
21	120Ω	½		BW-½-120	Br.-Red-Br. Output Cathode
22	200Ω	10		AB-200	Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GLOBE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
23	2500Ω	3.6Ω	170Ω	.5Ω		A-3876	T22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

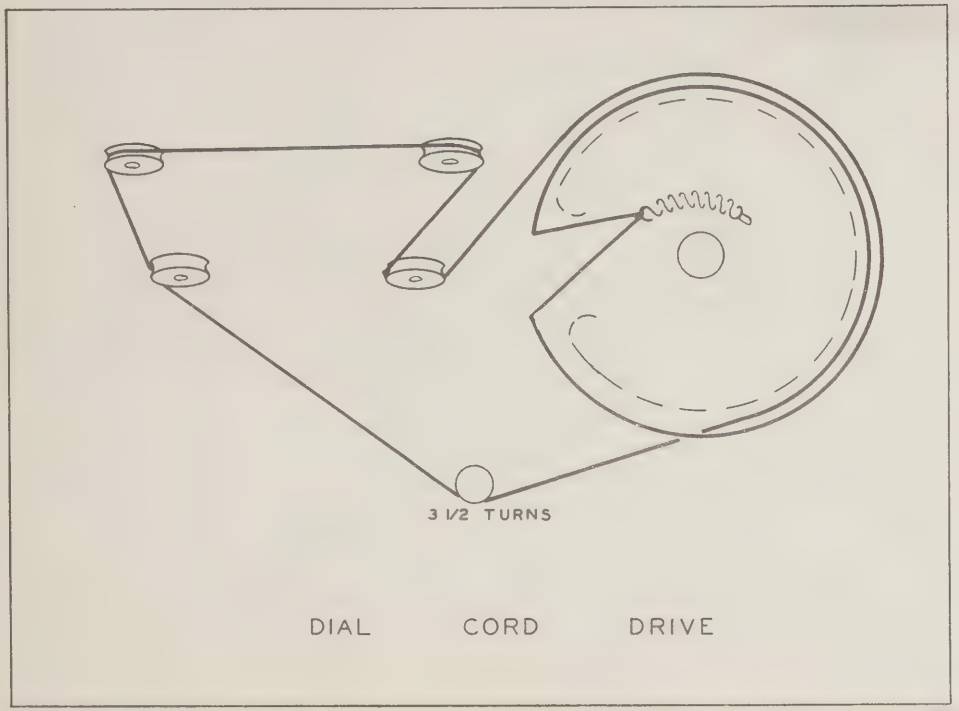
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GLOBE PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
24	450Ω	3.6Ω				
	CONE DIA.	VC DIA.				
25	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

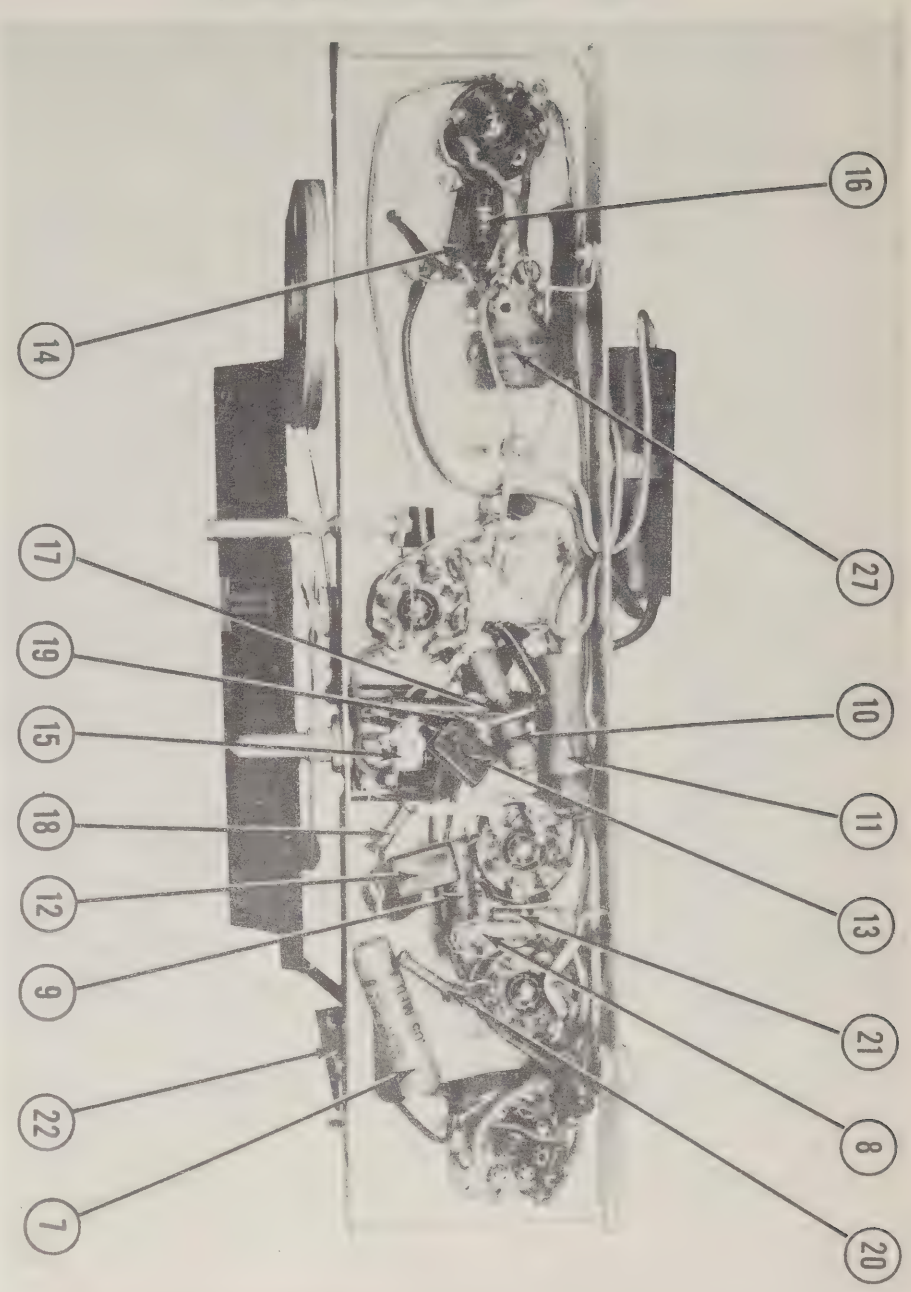
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GLOBE PART No.	MEISSNER PART No.	
26	Loop Ant.		1.8Ω			
27	Osc. Coil	3.5Ω	6.5Ω		14-1040	
28	Input IF	28Ω	28Ω	171-9	16-6658	
29	Output IF	19Ω	19Ω	675-9	16-6660	

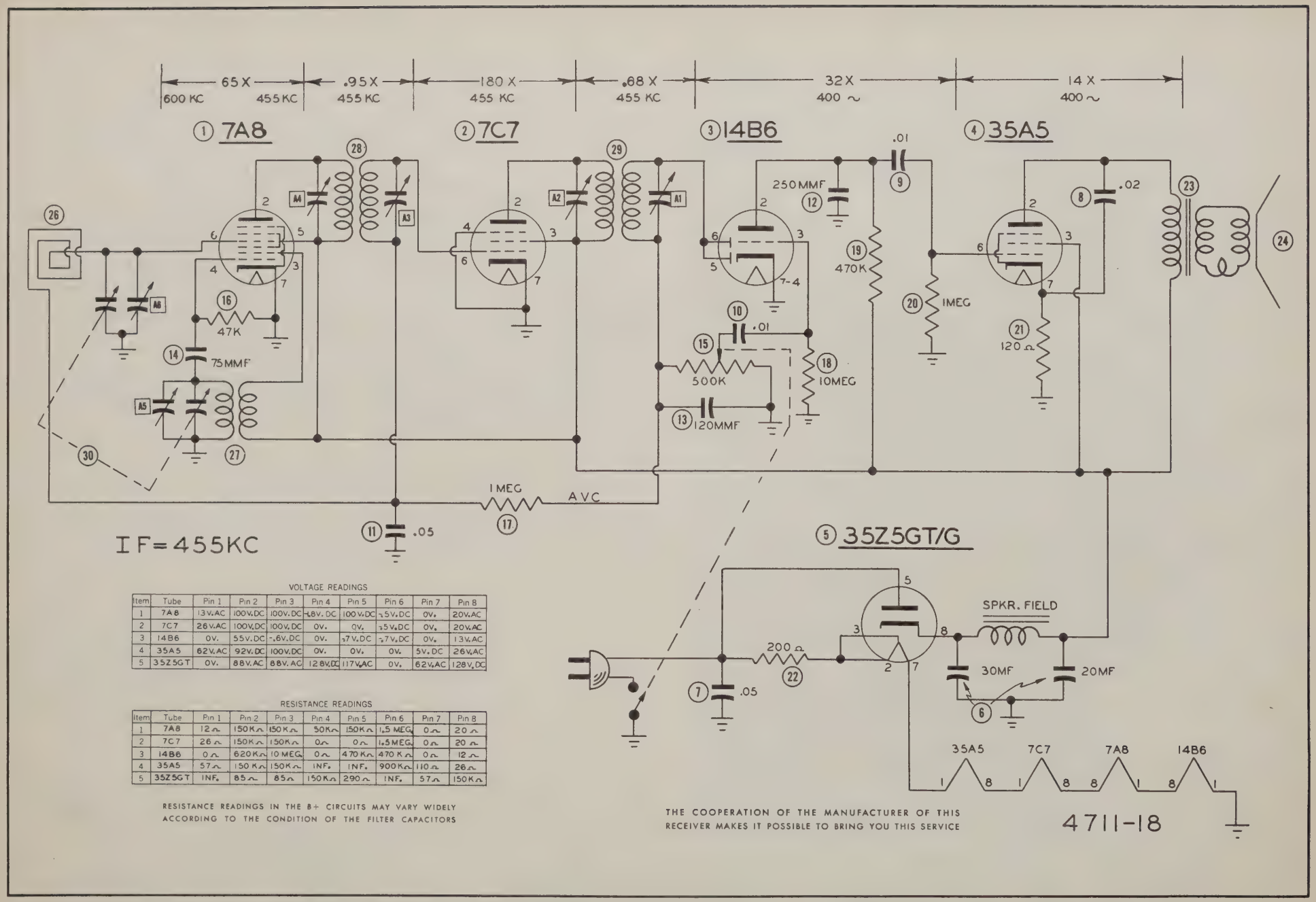
MISCELLANEOUS

ITEM No.	PART NAME	GLOBE PART No.	NOTES
30	2 Gang Var. Cap		17-389 MMF, 28-193 MMF



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A8	13 V.AC	100 V.DC	100 V.DC	-.8 V. DC	100 V.DC	-3.5 V.DC	0 V.	20 V.AC
2	7C7	26 V.AC	100 V.DC	100 V.DC	0 V.	0 V.	-3.5 V.DC	0 V.	20 V.AC
3	14B6	0 V.	55 V.DC	-.6 V.DC	0 V.	-.7 V.DC	-.7 V.DC	0 V.	13 V.AC
4	35A5	62 V.AC	92 V.DC	100 V.DC	0 V.	0 V.	0 V.	5 V. DC	26 V.AC
5	35Z5GT	0 V.	88 V.AC	88 V. AC	128 V.DC	117 V.AC	0 V.	62 V.AC	128 V.DC

RESISTANCE READINGS

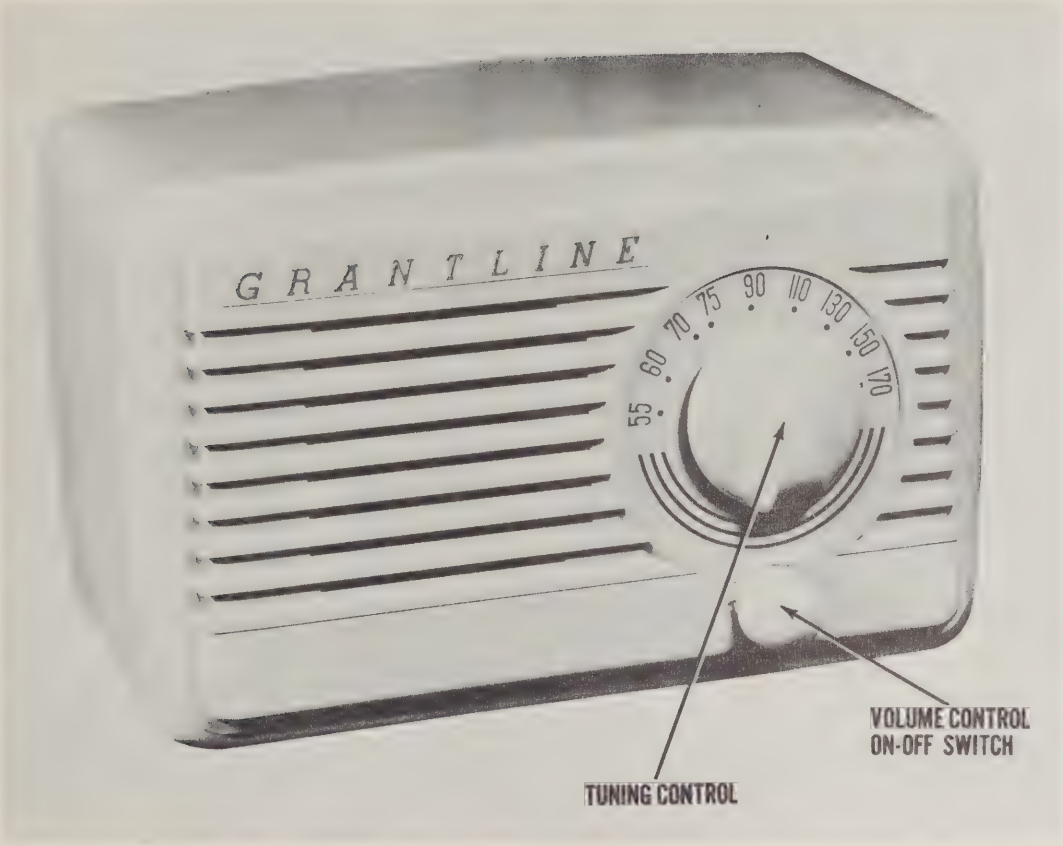
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A8	12 Ω	150 KΩ	150 KΩ	50 KΩ	150 KΩ	1.5 MEG.	0 Ω	20 Ω
2	7C7	26 Ω	150 KΩ	150 KΩ	0 Ω	0 Ω	1.5 MEG.	0 Ω	20 Ω
3	14B6	0 Ω	620 KΩ	10 MEG.	0 Ω	470 KΩ	470 KΩ	0 Ω	12 Ω
4	35A5	57 Ω	150 KΩ	150 KΩ	INF.	INF.	900 KΩ	110 Ω	26 Ω
5	35Z5GT	INF.	85 Ω	85 Ω	150 KΩ	290 Ω	INF.	57 Ω	150 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



GRANTLINE
MODEL 504-7

GRANTLINE
MODEL 504-7

GRANTLINE MODEL 504-7

TRADE NAME	Grantline, Model 504-7
SUPPLIER	W. T. Grant Co., 1441 Broadway, New York, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1700KC RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to stator of rear section of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMF.	High side to ext. ant. Low side to chassis.	1700KC	"	"	A5	Adjust for maximum output.
3	200MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

GRANTLINE MODEL [illegible]

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GRANTLINE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	GRANTLINE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	40	150		BRD4415	2N511	M-2x40-150	TA-440	PRSA150-40-	Filter - Red
B	40	150						40	" - Blue
7	.05	600		DT6S5	TP415	S-6-05	TC-15	684-05	Line Filter
8	.05	600		DT6S5	TP415	S-6-05	TC-15	684-05	RF Bypass Pwr. Supp.
9	.02	600		DT6S2	TP412	S-6-02	TC-12	684-03	Output Plate Bypass
10	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	Audio Coupling
11	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	" "
12	.05	600		DT6S5	TP415	S-6-05	TC-15	684-05	AVC Filter
13	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	Ext. Ant. Coupling
14	330	500		5W5T3	MC241	MO.5-333	1FM-33	1468-0003	Audio Plate Bypass
15	330	500		5W5T3	MC241	MO.5-333	1FM-33	1468-0003	Diode Filter

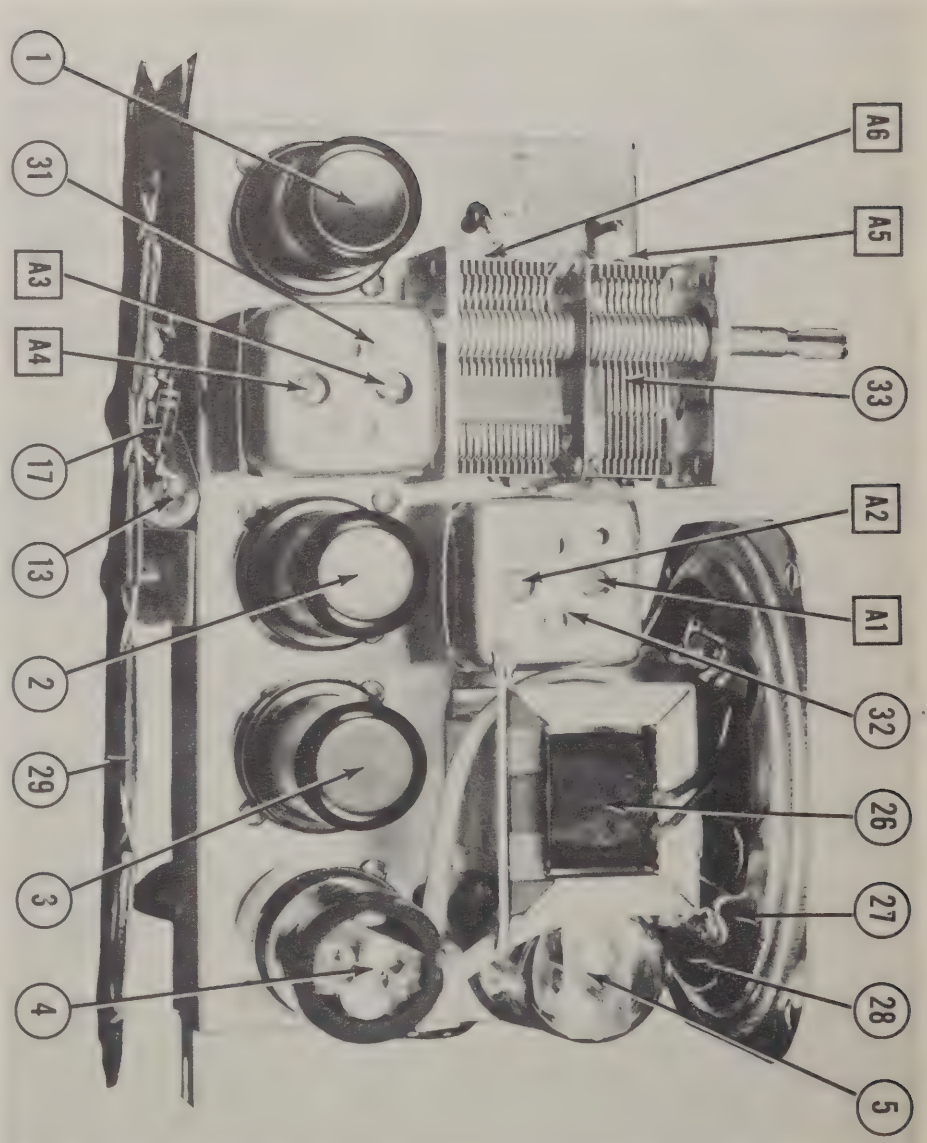
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	GRANTLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GRANTLINE PART No.	IRC PART No.	
17	470Ω	½		BTS-470	Yl.-Vl.-Br. Antenna Loading
18	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
19	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
21	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vl.-Yl. Output Grid
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
24	1500Ω	2		BT-2-1500	Br.-Grn.-Red Filter
25	22Ω	½		BW-½-22	Red-Red-Blk. Rectifier Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GRANTLINE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
26	3000Ω	3.9Ω	150Ω	.4Ω		A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GRANTLINE PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-113*		*Fabricate new mounting bracket.
27	PM	3.9Ω		Mod. P4-X		
	CONE DIA.	VC DIA.				
28	4"	½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

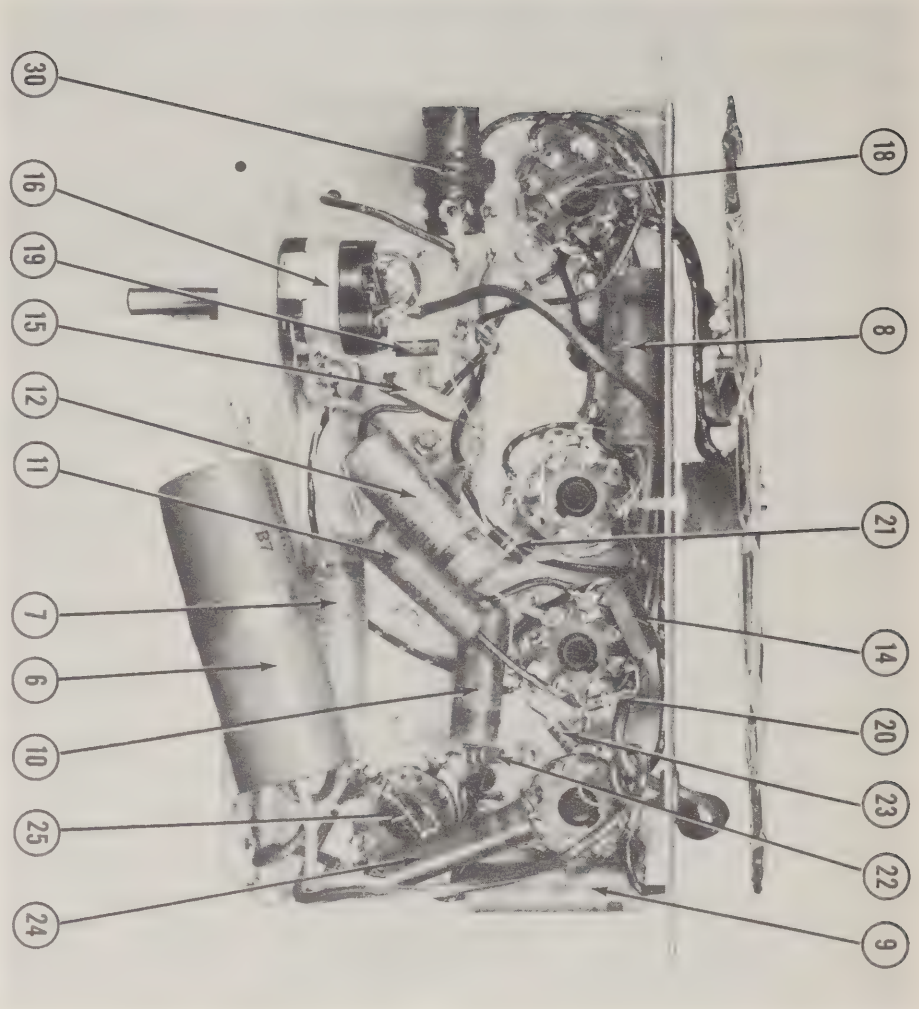
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GRANTLINE PART No.	MEISSNER PART No.	
29	Loop Ant.	.1Ω	1.2Ω			
30	Osc. Coil		10Ω		14-1040	Add 50MMFD from grid to high side tuning cap.
31	Input IF	18Ω	19Ω		16-6658	
32	Output IF	30Ω	30Ω		16-6660	

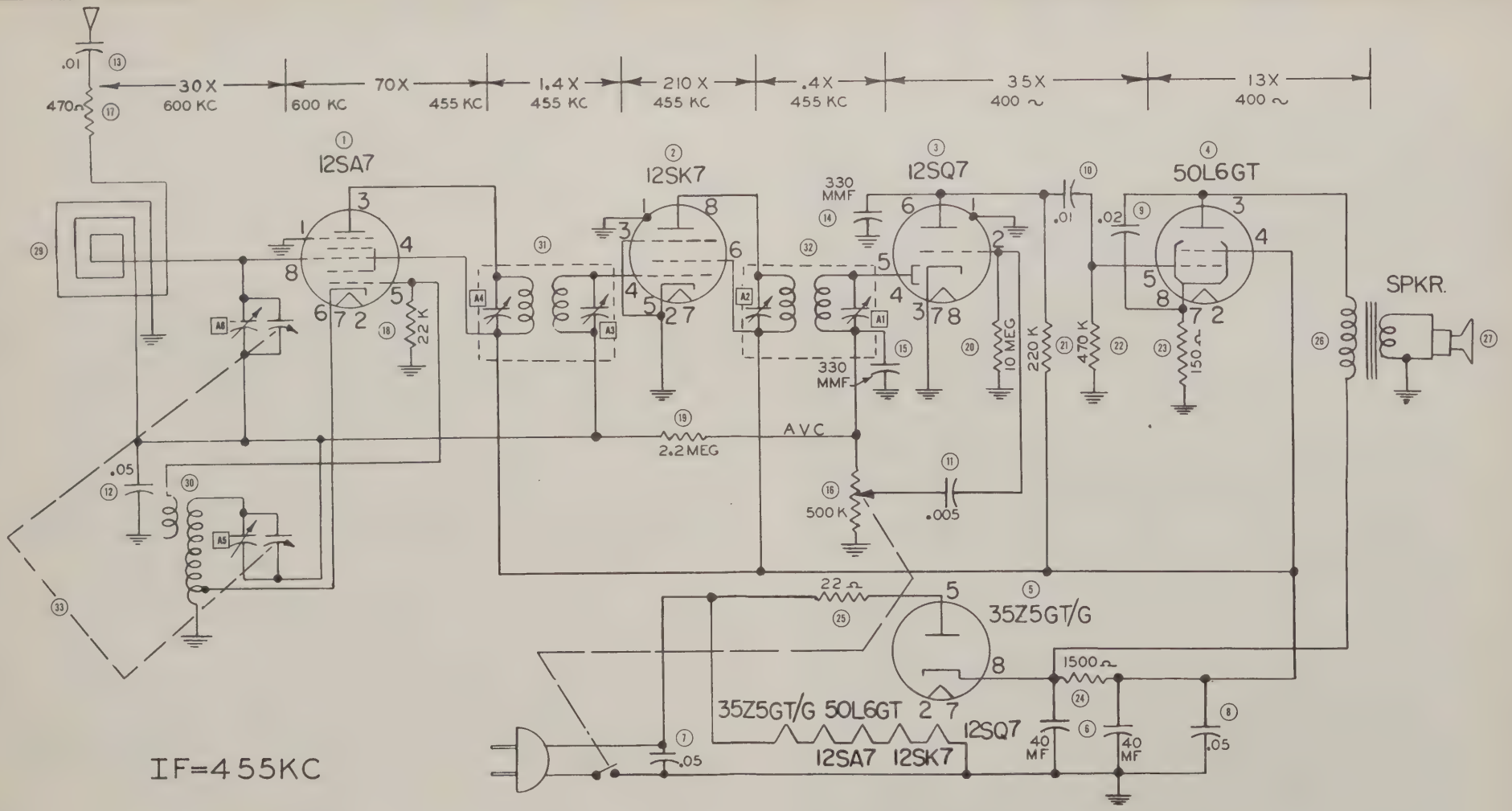
MISCELLANEOUS

ITEM No.	PART NAME	GRANTLINE PART No.	NOTES
33	2 Gang Var.Cap.		26-474 MMF, 32-194 MMF

CHASSIS—BOTTOM VIEW



GRANTLINE MODEL 504-7



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	23 V.AC	92 V.DC	92 V.DC	-1.9 V.DC	0V.	34 V.AC	-1 V.DC
2	12SK7	0V.	23 V.AC	0V.	-1 V.DC	0V.	92 V.DC	12 V.AC	92 V.DC
3	12SQ7	0V.	-.5 V.DC	0V. C	-.4 V.DC	-.4 V.DC	58 V.DC	12 V.AC	0V.
4	50L6GT	0V.	62 V.AC	125 V.DC	92 V.DC	0V.	0V.	34 V.AC	4.8 V.DC
5	35Z5GT	0V.	117 V.AC	110 V.AC	0V.	115 V.AC	0V.	62 V.AC	130 V.DC

RESISTANCE READINGS

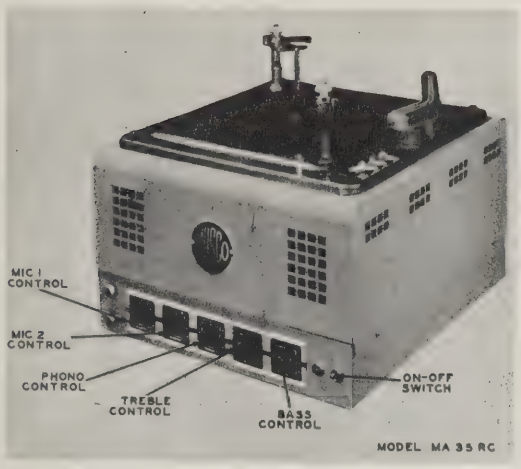
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0Ω	23Ω	100KΩ	100KΩ	22KΩ	.6Ω	34Ω	2.8MEG
2	12SK7	0Ω	23Ω	0Ω	2.8MEG	0Ω	100KΩ	12Ω	100KΩ
3	12SQ7	0Ω	10MEG	0Ω	500KΩ	520KΩ	320KΩ	12Ω	0Ω
4	50L6GT	INF	78Ω	100KΩ	100KΩ	460KΩ	INF	34Ω	130Ω
5	35Z5GT	INF	108Ω	100Ω	INF	130Ω	INF	78Ω	100KΩ

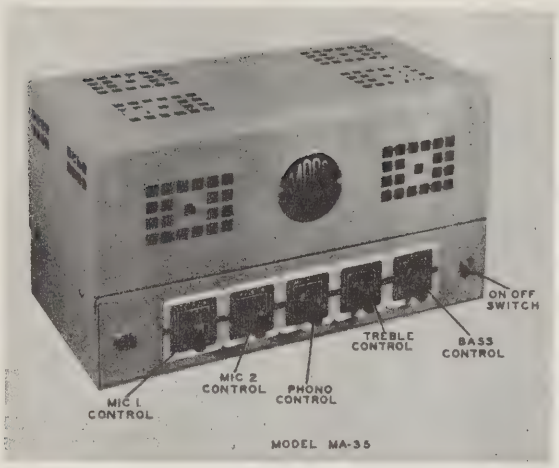
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS 4711-19

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**





TRADE NAME	Masco, Model MA-35, MA-35RC
MANUFACTURER	Mark Simpson Co., Inc., 32-28 49th St., Long Island City 3, N.Y.
TYPE SET	AC Operated 3-Channel 8 Tube Amplifier
TUBES (EIGHT)	Types, 7C7 Mike 1 Amp., 7C7 Mike 2 Amp., 7C7 AF Amp., 7C7 Tone Amp., 7N7 AF Amp.-Phase Inverter, (2) 6L6GA Power Output, 5U4G Rectifier.
POWER SUPPLY	110-120 Volts AC RATING 1.18 Amp. @ 117 Volts AC

6.2 V.AC MEASURED BETWEEN FILAMENT PINS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	*26V.DC	24V.DC	27V.DC	0V.	0V.	-7V. DC	0V.	*26V.DC
2	7C7	*26V.DC	24V.DC	27V.DC	0V.	0V.	-6V. DC	0V.	*26V. DC
3	7C7	*26V.DC	115V.DC	115V.DC	115V.DC	0V.	0V.	4.8V.DC	*26V.DC
4	7C7	*26V.DC	113V.DC	113V.DC	113V.DC	0V.	0V.	3.8V.DC	*26V.DC
5	7N7	*26V.DC	3.4V.DC	80V.DC	0V.	0V.	87V.DC	3.4V.DC	*26V.DC
6	6L6GA	0V.	*26V.DC	443V.DC	330V.DC	0V.	0V.	*26V.DC	26V.DC
7	6L6GA	0V.	*26V.DC	440V.DC	330V.DC	0V.	80V.DC	*26V.DC	26V.DC
8	5U4G	0V.	448V.DC	0V.	375V.AC	0V.	375V.AC	0V.	448V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	180 Ω	300 KΩ	1 MEG.	0Ω	0Ω	15MEG.	0Ω	180 Ω
2	7C7	180 Ω	300 KΩ	1 MEG.	0Ω	0Ω	15MEG.	0Ω	180Ω
3	7C7	180 Ω	130KΩ	130KΩ	130KΩ	0Ω	240KΩ	5 KΩ	180Ω
4	7C7	180 Ω	75KΩ	75KΩ	75KΩ	0Ω	250KΩ	2 KΩ	180 Ω
5	7N7	180 Ω	1 KΩ	120 KΩ	10 KΩ	520 KΩ	120 KΩ	1 KΩ	180 Ω
6	6L6GA	0Ω	180Ω	11KΩ	10KΩ	108KΩ	INF.	180 Ω	180Ω
7	6L6GA	0Ω	180Ω	11KΩ	10KΩ	100KΩ	120KΩ	180Ω	180Ω
8	5U4G	INF.	11KΩ	INF.	40Ω	INF.	38Ω	INF.	11KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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MASCO
MODELS MA-35, MA-35RC

MASCO
MODELS MA-35, MA-35RC

PARTS LIST AND DESCRIPTIONS

MASCO MODELS
MA-35, MA-35RC

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mic. 1 Amp.	7C7	7C7	8V	
2	Mic. 2 Amp.	7C7	7C7	8V	
3	AF Amp.	7C7	7C7	8V	
4	Tone Amp.	7C7	7C7	8V	
5	AF Amp.-Phase Inverter	7N7	7N7	8AC	
6	Power Output	6L6GA	6L6GA	7AC	
7	Power Output	6L6GA	6L6GA	7AC	
8	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MASCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9	8	600		KR608	HS693	D-8-600	AP-86	GL600-8	Filter
10	8	600		KR608	HS693	D-8-600	AP-86	GL600-8	"
11A	8	450		BRL8845	2N518	M-2x8-450	UT-88	PRSA450-8-8	"
B	8	450							"
12A	8	450		BRL8845	2N518	M-2x8-450	UT-88	PRSA450-8-8	"
B	8	450							"
13	10	50		BR105	TC32	M-10-50	TA-510	PRS50-10	Cath. Bypass
14	.1	600		DT6P1	TP418	S-6-1	TC-1	684-.1	Audio Coupling
15	.1	600		DT6P1	TP418	S-6-1	TC-1	684-.1	" "
16	.1	600		DT6P1	TP418	S-6-1	TC-1	684-.1	" "
17	.1	600		DT6P1	TP418	S-6-1	TC-1	684-.1	" "
18	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	" "
19	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	" "
20	.1	600		DT6P1	TP418	S-6-1	TC-1	684-.1	Mic. Amp. Screen Bypass
21	.1	600		DT6P1	TP418	S-6-1	TC-1	684-.1	" " " "
22	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Mic. Coupling
23	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Mic. Coupling
24	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Tone Compensation
25	.1	600		DT6P1	TP418	S-6-1	TC-1	684-.1	Line Bypass
26	500	500		5W5T5	MC245	MO.5-35	1FM-35	1468-0005	Tone Compensation
27	500	500		5W5T5	MC245	MO.5-35	1FM-35	1468-0005	" "

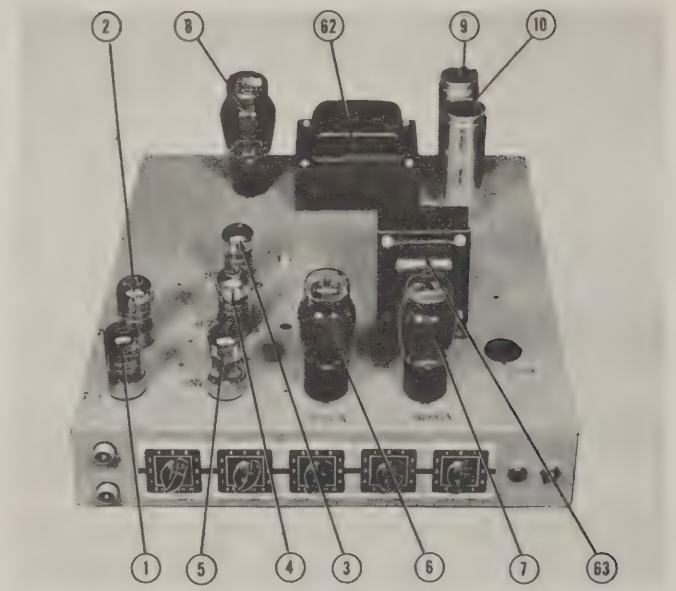
CONTROLS

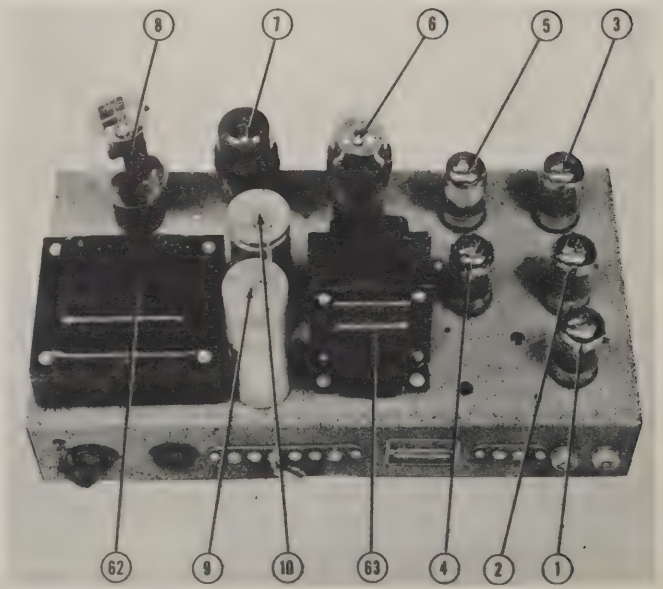
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
28A	500KΩ	1		MR48	D13-133	M-60-Z	Mike 1 Control
B	Shaft			Not Req.	A	Not Req.	Attach to 28A per instructions
29A	500KΩ	1		MR48	D13-133	M-60-Z	Mike 2 Control
B	Shaft			Not Req.	A	Not Req.	Attach to 29A per instructions
30A	500KΩ	1		MR48	D13-133	M-60-Z	Phono Control
B	Shaft			Not Req.	A	Not Req.	Attach to 30A per instructions
31A	500KΩ	1		MR48	D13-133	M-60-Z	Treble Control
B	Shaft			Not Req.	A	Not Req.	Attach to 31A per instructions
32A	500KΩ	1		MR48	D13-133	M-60-Z	Bass Control
B	Shaft			Not Req.	A	Not Req.	Attach to 32A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	IDENTIFICATION CODES
33	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue 1st Mic. Amp. Grid
34	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue 2nd Mic. Amp. Grid
35	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 1st Mic. Amp. Screen Dropping
35	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 1st Mic. Amp. Screen Dropping
36	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 2nd Mic. Amp. Screen Dropping
37	270KΩ	½		BTS-270K	Red-Vi.-Yl. 1st Mic. Amp. Plate Load
38	270KΩ	½		BTS-270K	Red-Vi.-Yl. 2nd Mic. Amp. Plate Load
39	270KΩ	½		BTS-270K	Red-Vi.-Yl. Isolation
40	270KΩ	½		BTS-270K	Red-Vi.-Yl. "

CHASSIS—TOP VIEW





PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
41	270KΩ	½		BTS-270K	Red-Vl.-Yl. "
42	5000Ω	½		BTS-4700	Grn.-Blk.-Red AF Cathode
43	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AF Plate Load
44	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Filter
45	270KΩ	½		BTS-270K	Red-Vl.-Yl. Tone Compensation
46	25KΩ	½		BTS-27K	Red-Vl.-Or. " "
47	2000Ω	½		BTS-2200	Red-Blk.-Red Tone Amp. Cathode
48	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Tone Amp. Plate Load
49	12KΩ	½		BTS-12K	Br.-Red-Or. Filter
50	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Driver Grid
51	1000Ω	½		BTS-1000	Br.-Blk.-Red Driver Cathode
52	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Driver Plate Load
53	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
54	10KΩ	½		BTS-10K	Br.-Blk.-Or. Phase Inverter Grid
55	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Output Grid
56	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Output Grid
57	200Ω	10		AE-200	Output Cathode
58	12KΩ	½		BTS-12K	Br.-Red-Or. Filter
59	2500Ω	10		AB-2500	"
60	10KΩ	20		DG-10K	Bleeder
61	270KΩ	½		BTS-270K	Red-Vl.-Yl. Feedback

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	
62	117V AC @ 1.1A	700V CT @ .185A	6.2V AC @ 3.0A	6.2V AC @ 3.0A	A-35	P-6314	T22R07	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
63	[illegible] CT	2W [illegible] 10Ω 500Ω	240Ω CT	.4Ω .1Ω .7Ω .4Ω 21Ω	C-29	A-3811*	T-2S-04*		*See universal mounting brackets.

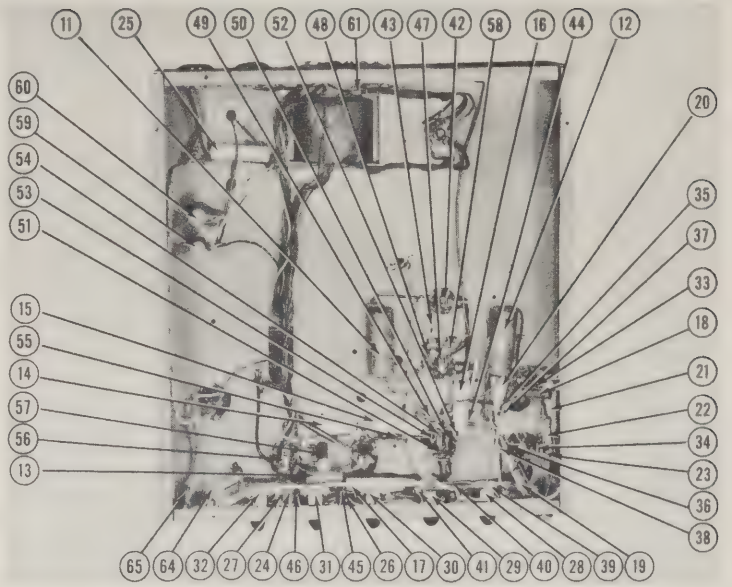
DIAL LIGHT

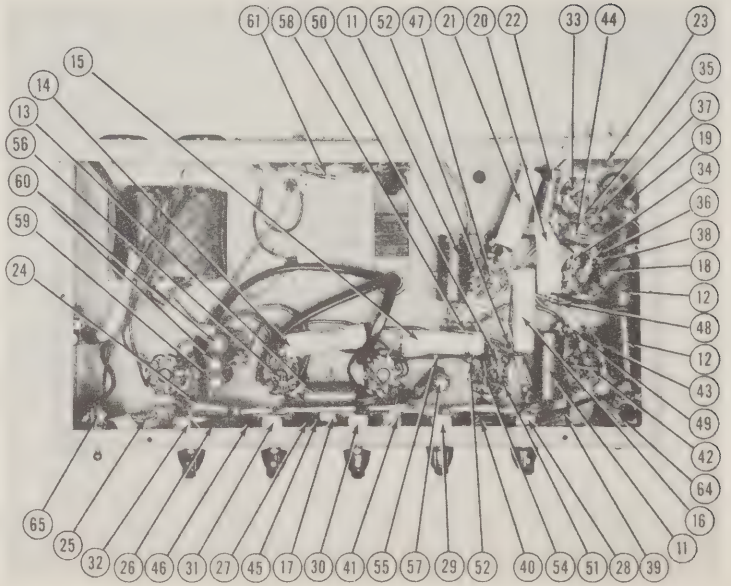
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.		
64	Bayonet	6-8	0.15	pr wh			Type 47

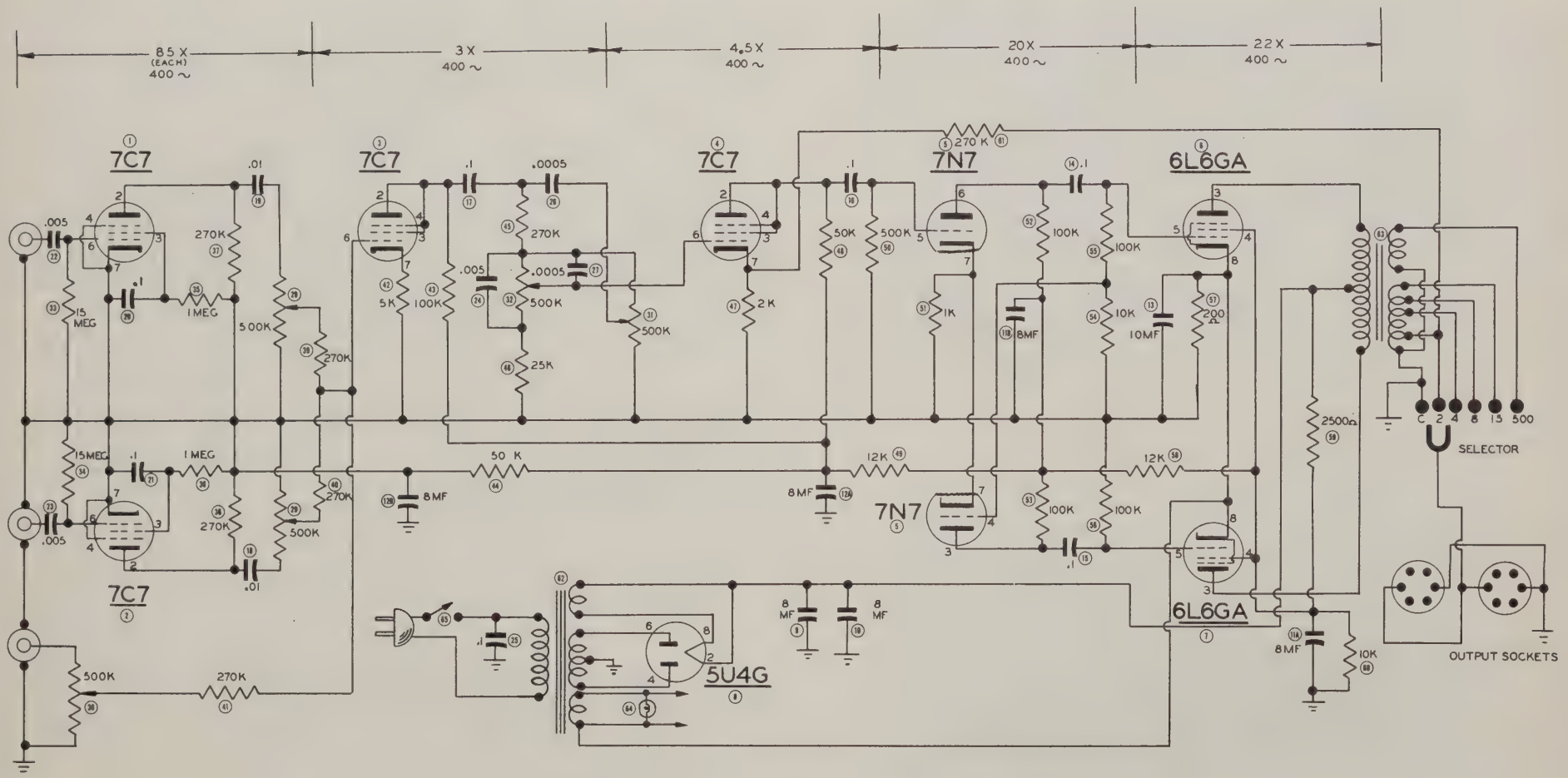
MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
65	Switch		On-Off

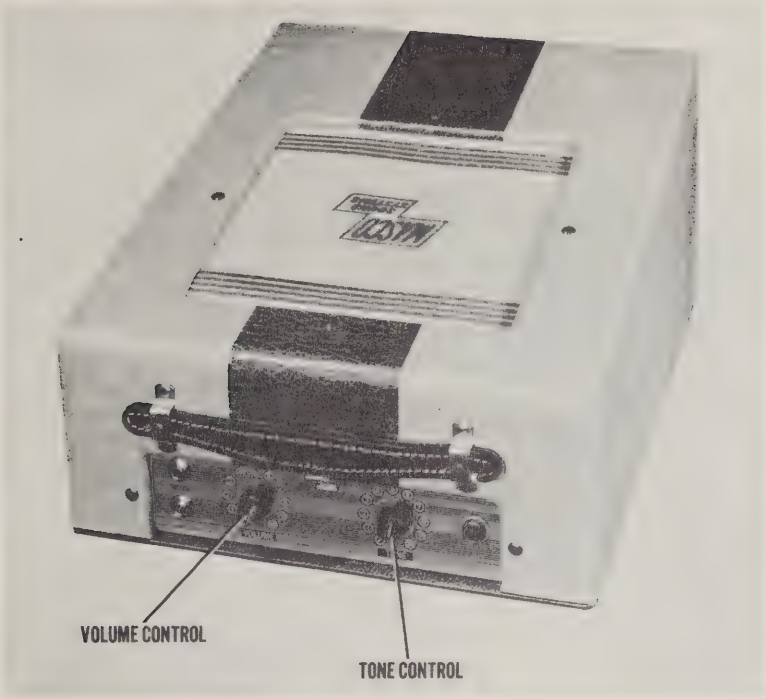
CHASSIS—BOTTOM VIEW







THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



MASCO
MODEL MAP-120

MASCO
MODEL MAP-120

MASCO · MODEL MAP-120

TRADE NAME	Masco, Model MAP-120
MANUFACTURER	Mark Simpson Co., Inc., 32-28 49th St., Long Island City 3, N.Y.
TYPE SET	AC Operated 2 Channel 5 Tube Amplifier with Speaker
TUBES (FIVE)	Types, 6SL7GT AF Amp., 6SL7GT AF Amp.-Phase Inverter, (2) 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .610 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SL7GT	0V.	140V.DC	1.9V.DC	0V.	117V.DC	1.4V.DC	*22V.DC	*22V.DC
2	6SL7GT	0V.	138V.DC	1.7V.DC	0V.	132V.DC	1.75V.DC	*22V.DC	*22V.DC
3	6V6GT	0V.	*22V.DC	360V.DC	335V.DC	0V.	0V.	*22V.DC	22V.DC
4	6V6GT	0V.	*22V.DC	360V.DC	335V.DC	0V.	0V.	*22V.DC	22V.DC
5	5Y3GT	0V.	390V.DC	0V.	330V.AC	0V.	330V.AC	0V.	390V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SL7GT	40 KΩ	300 KΩ	4.5 KΩ	48 KΩ	300 KΩ	2 KΩ	230 Ω	230 Ω
2	6SL7GT	24 KΩ	425 KΩ	4.9 KΩ	550 KΩ	425 KΩ	4.5 KΩ	230 Ω	230 Ω
3	6V6GT	INF.	230 Ω	100 KΩ	100 KΩ	570 KΩ	INF.	230 Ω	230 Ω
4	6V6GT	0 Ω	230 Ω	100 KΩ	100 KΩ	650 KΩ	INF.	230 Ω	230 Ω
5	5Y3GT	INF.	100 KΩ	INF.	82 Ω	INF.	90 Ω	INF.	100 KΩ

* 6.5V AC MEASURED BETWEEN FILAMENT PINS

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.		6SL7GT	8D	
2	AF Amp.-Phase Inv.		6SL7GT	8D	
3	Power Output		6V6GT	7AC	
4	Power Output		6V6GT	7AC	
5	Rectifier		5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MASCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	8	450		BRL8-450	CN818	M-8x8-450	UT-88	PRSA450-8-8	Filter - Red
B	8	450							" - "
7A	8	450		BRL8-450	CN818	M-8x8-450	UT-88	PRSA450-8-8	" - "
B	8	450							" - "
8	8	450		BR845	TC71	M-8-450	UT-8	PRS450-8	Filter
9	10	50		BR105	TC32	M-10-50	TA-510	PRS50-10	Cath. Bypass
10	10	50		BR105	TC32	M-10-50	TA-510	PRS50-10	" "
11	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Audio Coupling
12	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	" "
13	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	" "
14	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	Tone Compensation
15	.001	600		DT6D1	TP404	S-6-001	TC-21	684-001	Audio Coupling

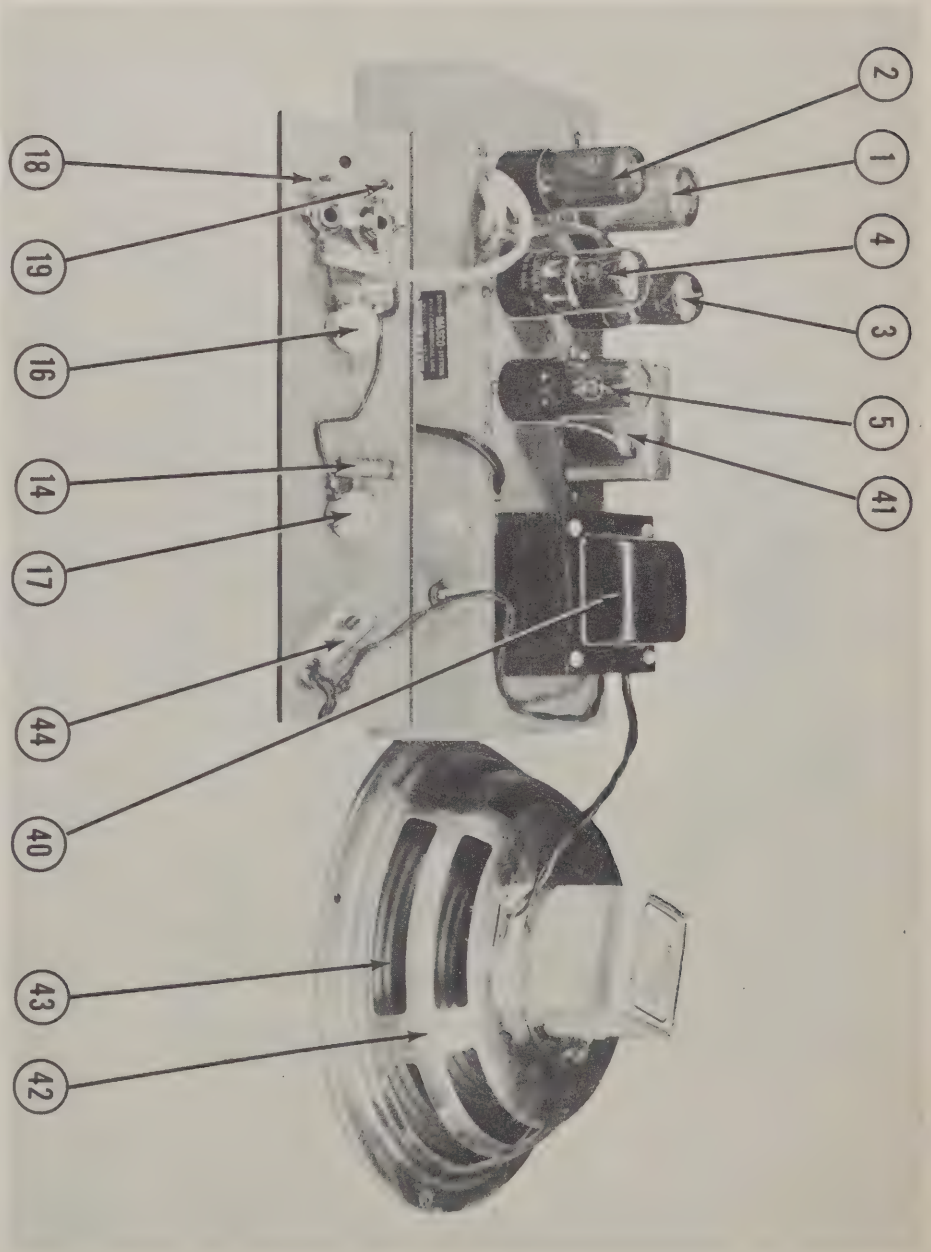
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Atttach to 16A per instructions
17A	500KΩ			M48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 17A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	IDENTIFICATION CODES
18	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Isolation
19	100KΩ	½		BTS-100K	Br.-Blk.-Yl. "
20	2000Ω	½		BTS-2200	Red-Blk.-Red 1st AF Cathode
21	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
22	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 2nd AF Plate Load
23	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Volume Control Shunt
24	5000Ω	½		BTS-4700	Grn.-Blk.-Red 2nd AF Cathode
25	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Driver Grid
26	5000Ω	½		BTS-4700	Grn.-Blk.-Red Driver Cathode
27	270KΩ	½		BTS-270K	Red-Vi.-Yl. Driver Plate Load
28	270KΩ	½		BTS-270K	Red-Vi.-Yl. Phase Inverter Plate Load
29	5000Ω	½		BTS-4700	Grn.-Blk.-Red Phase Inverter Cathode
30	25KΩ	2		BTS-25K	Red-Grn.-Or. Phase Inverter Grid
31	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
32	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
33	250Ω	10		AB-250	Output Cathode
34	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Filter
35	47KΩ	½		BTS-47K	Yl.-Vi.-Or. "
36	10KΩ	½		BTS-10K	Br.-Blk.-Or. "
37	10KΩ	½		BTS-10K	Br.-Blk.-Or. Filter
38	200Ω	10		AB-200	"
39	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Feedback

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	
40	117V AC @ .61A	660V CT @ .08A	6.3V AC @ 2.0A	6.5V AC @ 1.6A	A-12D	P-6013	T22R05	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
41	10000Ω CT	4.1Ω	470Ω CT	.5Ω	O-12S	A-3824	T22S56		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MASCO PART No.	JENSEN PART No.		
42	FIELD PM	VC IMP. 4.1Ω	AM-10	ST-120* Mod. P10-S		*Replace output transformer to match 8Ω voice coil.
43	CONE DIA. 9-3/4"	VC DIA. 15/16"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT			

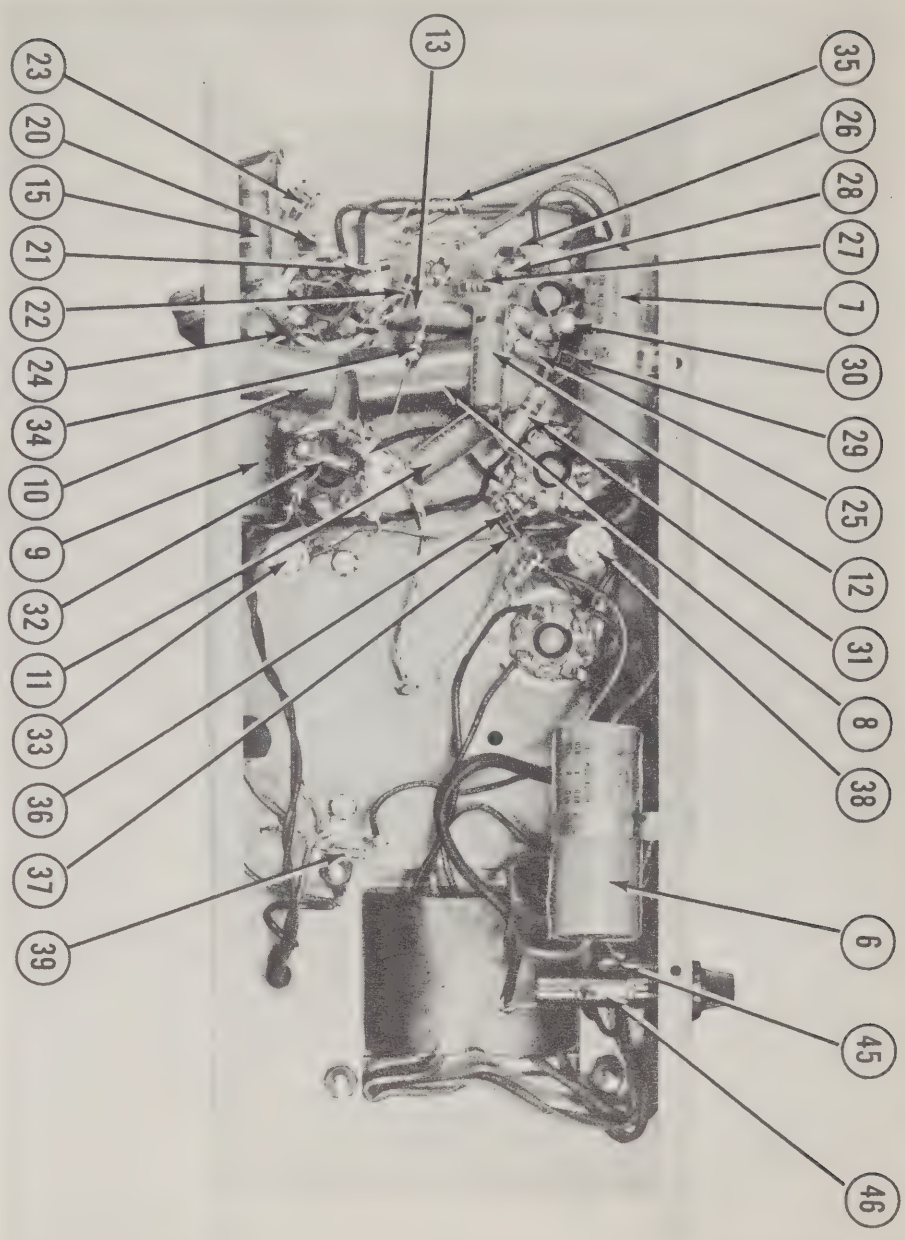
DIAL LIGHT

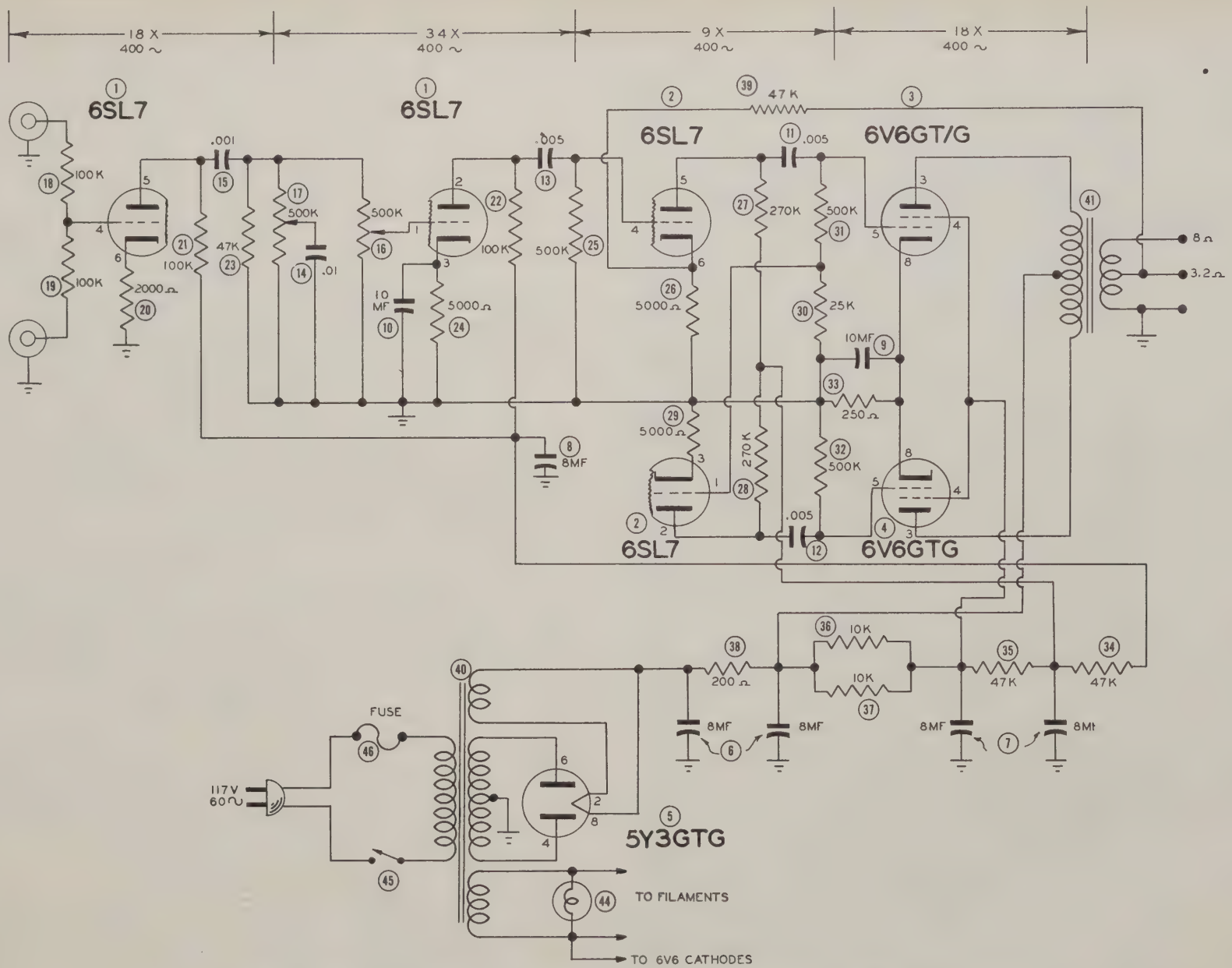
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.		
44	Bayonet	6-8	.15A	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
45	Switch		On-Off
46	Fuse		3 Amp. - SFE 3

CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

MECK
MODEL 5D7-WL18 BATTERY OPERATED

MECK
MODEL 5D7-WL18 BATTERY OPERATED

MECK MODEL 5D7-WL18

TRADE NAME	Meck, Model 5D7/WL18
MANUFACTURER	John Meck Industries, Inc., Plymouth, Indiana
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3V4 Power Output.
POWER SUPPLY	105-125 Volts AC-DC or 7½ Volt "A" Supply & 90 Volt "B" Supply
RATING	.190 Amp. @ 117 Volts AC or 55 MA @ 7.8 Volts DC & 11MA @ 93 Volts DC
TUNING RANGE—BROADCAST	530-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a capacitor in series with the low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy ant. to 200 MMF to reduce hum modulation.
2		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

MECK MODEL 5D7/WL18

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	50	150	CL-10007	BRD3515	2N520	M-5030-150	TA-530	PRSA150-50-30	Filter - Green
B	30	150							" - Red
6	100	25	CL-10009	BRH-251	TC2501	M-100-25	UHC-102	PRS25-100	Filament Bypass
7	.05	400	CP-14503	DT4P5	TP426	S-4-05	TC-15	484-05	Line Filter
8	.005	600	CP-14502	DT6D5	TP408	S-6-005	TC-25	684-005	Output Plate Bypass
9	.01	120	CP-11103	DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
10	.01	120	CP-11103	DT4S1	TP421	S-4-01	TC-11	484-01	Audio Screen Bypass
11	.01	120	CP-11103	DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
12	.02	200		DT4S2	TP423	S-4-02	TC-12	484-02	AVC Filter
13	.01	120	CP-11103	DT4S1	TP421	S-4-01	TC-11	484-01	Conv. Screen Decoup.
14	200	500		5W5T2	MC237	M0.5-32	1FM-32	1468-0002	Diode Filter
15	50	500	CM-15500	5W5Q5	MC225	M0.5-45	1FM-45	1468-00005	Osc. Grid Capacitor

CONTROLS

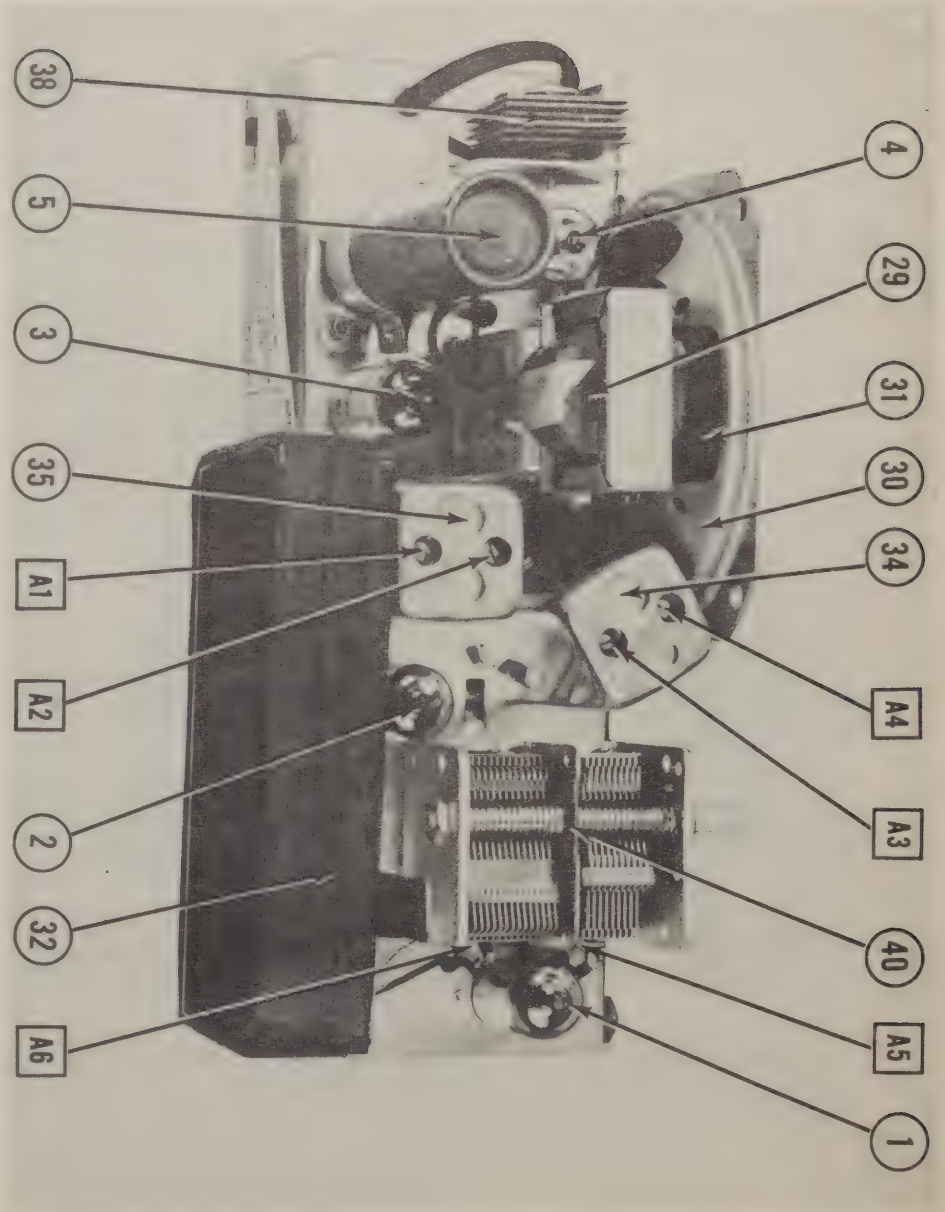
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1		MR46	D13-133	M-60-Z	Volume Control-Late production
B	Shaft			Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch			M27	42	SW-A2	" " " " "
16A	1 Meg.	1	VC-21105	MR53	D13-137	M-63-Z	Volume Control-Early production
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	IDENTIFICATION CODES
17	100KΩ	½	RC-31003	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
18	20KΩ	½	RC-32202	BTS-22K	Red-Blk.-Or. Converter Screen Dropping
19	.2 Meg.	½	RC-32204	BTS-2.2 Meg.	Red-Blk.-Grn. IF Grid-See Note 1
20	2 Meg.	½	RC-32204	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
21	10 Meg.	½	RC-31005	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
22	3 Meg.	½	RC-33304	BTS-3.3 Meg.	Or.-Blk.-Grn. AF Screen Dropping
23	1 Meg.	½	RC-31004	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
24	2 Meg.	½	RC-32204	BTS-2.2 Meg.	Red-Blk.-Grn. Output Grid
25	470Ω	½	RC-34700	BTS-470	Yl.-Vi.-Br. Filament String
26A	800Ω	10	RX-10001	AB-800	Filter
B	1600Ω			AB-2000	Filament String-See Note 2
27	22K	½	RC-30220	BW-½-22	Red-Red-Blk. Surge Limiter
28	20KΩ	½	RC-32202	BTS-22K	Red-Blk.-Or. Series Battery Charging

Note 1 - Some models use 1 Meg. in this application.
Note 2 - On IRC replacement set slider at 1600Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MECK PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
29	7400Ω	3.0Ω	620Ω	.5Ω	TO-10007	A-3878*	T22847*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MECK PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
30	PM	3.0Ω	SRP-10008			
	CONE DIA.	VC DIA.				
31	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MECK PART No.	MEISSNER PART No.	
32	Loop Ant.		2.5Ω	AL-10016		
33	Osc. Coil	1.2Ω	6Ω	TRC-10001	14-1040	
34	Input IF	19Ω	19Ω	TS-10001	16-6666	
35	Output IF	19Ω	19Ω	TS-10001	16-6667	

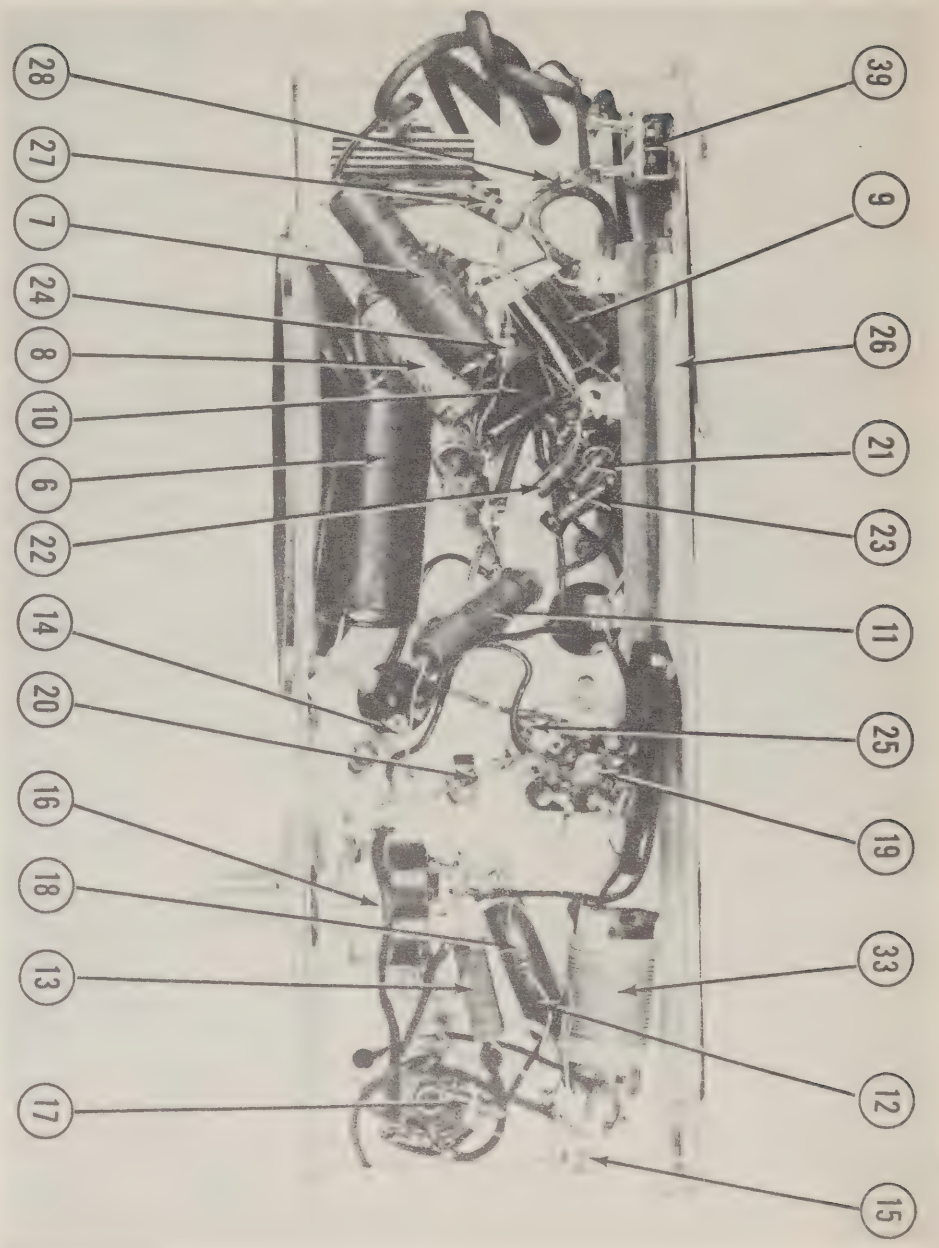
BATTERIES

ITEM No.	VOLTAGE	MECK PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
36	1½ V.		#950			Five used in series
37	45 V.			#455		Two used in series

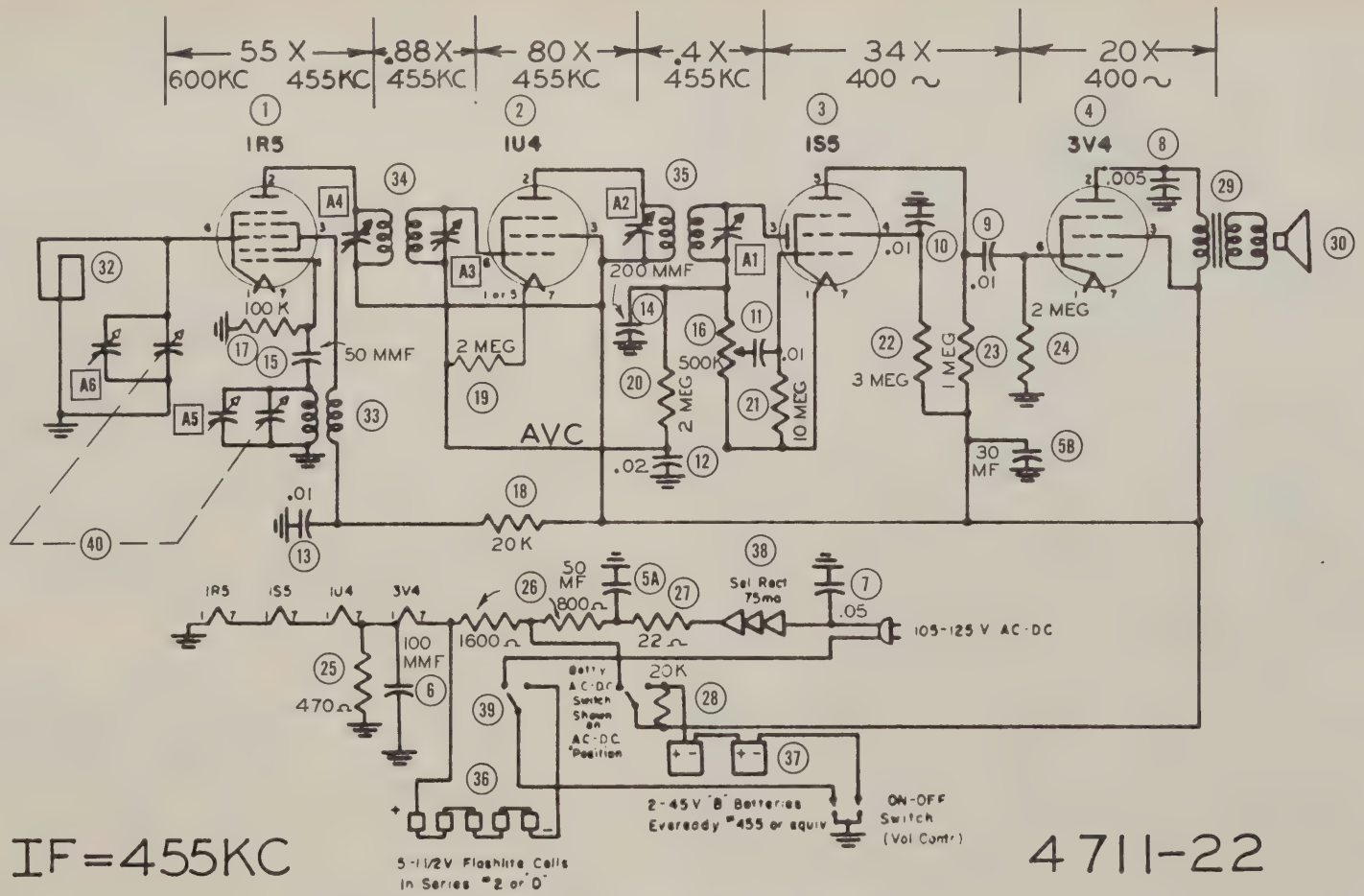
MISCELLANEOUS

ITEM No.	PART NAME	MECK PART No.	NOTES
38	Rectifier		Selenium
39	Switch		Power Change-Over
40	2 Gang Var.Cap.	CV-10008	33-451 MMF, 26-191 MMF

CHASSIS—BOTTOM VIEW



MECK MODEL 5D7/WL18



IF=455KC

4711-22

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	92V.DC	50V. DC	-1.8V.DC	0V.	0V.	1.5V.DC
2	1U4	2.9V. DC	92V. DC	92V. DC	.4V. DC	2.9V.DC	.4V. DC	4.2V. DC
3	1S5	1.5V. DC	0V.	.6 V.DC	21V.DC	27V. DC	0V.	2.9V.DC
4	3V4	4.2V.DC	89V.DC	92V.DC	0V.	5.8V.	0V.	7.2V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0Ω	1.5KΩ	23KΩ	100KΩ	0Ω	2.5Ω	*
2	1U4	*	1.5KΩ	1.5KΩ	1MEG.	*	1MEG.	*
3	1S5	*	INF.	390KΩ	3.3MEG	1MEG.	10 MEG.	*
4	3V4	*	2KΩ	1.5KΩ	INF.	*	1.7MEG.	*

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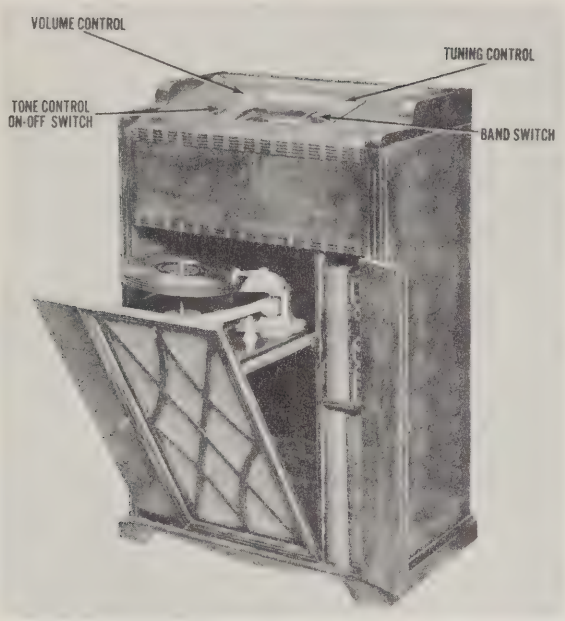
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to Pin #1 of 1S5 during stage gain measurements.

1 - DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.



MIDWEST
MODELS S-12, ST-12, SG-12 (CH. SGT-12)

TRADE NAME Midwest, Models S-12, ST-12, SG-12 (Chassis SGT-12)
MANUFACTURER Midwest Radio Corp., 909 Broadway, Cincinnati, Ohio
TYPE SET AC Operated Multi-Band Superheterodyne with Loop Antenna & Phonograph Provisions
TUBES (TWELVE) Types, 7A7 RF Amp., 7Q7 Converter, (2) 7A7 IF Amp., 7A6 Det.-AVC, 6E5 Tuning Indicator, (2) 7A4 AF Amp., 7A4 Phase Inverter, (2) 7C5 Power Output, 5U4G Rectifier.
POWER SUPPLY 105-125 Volts AC RATING 1 Amp. @ 117 Volts AC
TUNING RANGE— Band A - 140-440KC, Band B - 540-1650KC, Band C - 1.6-4.8MC, Band D - 4.8-10.8MC, Band E - 10.8-22.5MC.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD.	High side to Pin 6 (grid) 7Q7. Low side to chassis.	456KC	B	1000KC	Across voice coil	A1,A2, A3,A4, A5,A6.	Adjust for maximum output.
2	200MMFD in series with 400Ω	High side to terminal "A" of ant. term. strip. Low side to chassis.	400KC	A	400KC	"	A7,A8, A9.	" " " "
3	"	"	150KC	"	150KC	"	A10,A11 A12.	Adjust for maximum output. Repeat Steps 2 and 3 until no further improvement can be made.
4	"	"	1600KC	B	1600KC	"	A13,A14, A15.	Adjust for maximum output.
5	"	"	550KC	"	550KC	"	A16,A17	Adjust for maximum output. Repeat Steps 4 and 5 until no further improvement can be made.
6	"	"	4.7MC	C	4.7MC	"	A18,A19 A20.	Adjust for maximum output.
7	"	"	1.6MC	"	1.6MC	"	A21,A22, A23.	Adjust for maximum output. Repeat Steps 6 and 7 until no further improvement can be made.
8	"	"	10MC	D	10MC	"	A24,A25 A26.	Adjust for maximum output.
9	"	"	5MC	"	5MC	"	A27,A28, A29.	Adjust for maximum output. Repeat Steps 8 and 9 until no further improvement can be made.
10	"	"	22MC	E	22MC	"	A30,A31 A32.	Adjust for maximum output.
11	"	"	11.5MC	"	11.5MC	"	A33,A34 A35.	Adjust for maximum output. Repeat Steps 10 and 11 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MIDWEST PART No.	STANDARD REPLACEMENT		
1	RF Amp.	7A7	7A7	8V	
2	Converter	7Q7	7Q7	8AL	
3	IF Amp.	7A7	7A7	8V	
4	IF Amp.	7A7	7A7	8V	
5	Det.-AVC	7A6	7A6	7AJ	
6	Tuning Indicator	6E5	6E5	6R	
7	1st AF Amp.	7A4	7A4	5AC	
8	2nd AF Amp.	7A4	7A4	5AC	
9	Phase Inverter	7A4	7A4	5AC	
10	Power Output	7C5	7C5	6AA	
11	Power Output	7C5	7C5	6AA	
12	Rectifier	5U4G	5U4G	5T	

CAPACITORS

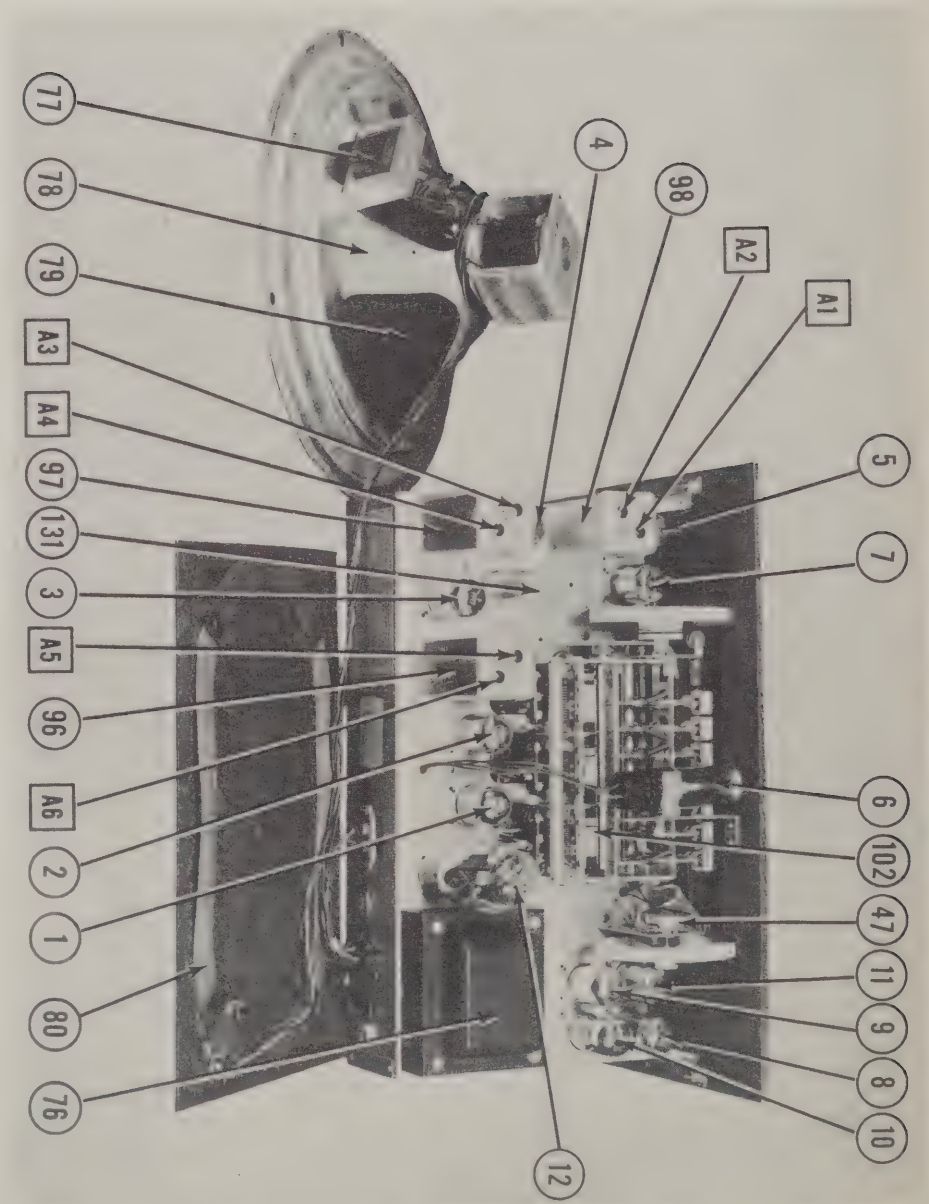
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MIDWEST PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
13A	40	450	CE-6	UP9BJ39	FP238	DY-2x40-450	EL-240	AF88J	■ Filter
B	40	450							▲ "
14	40	25	CE-4	BR502	TC29	M-50-25	TA-50	PRS25-50	Audio Cath. Bypass
15	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	Line Bypass
16	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	RF Bypass Pwr. Supp.
17	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	Audio Coupling
18	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	" "
19	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	Tone Compensation
20	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	Audio Coupling
21	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	Tone Compensation
22	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
23	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	IF Screen Bypass
24	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	AVC Filter
25	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	IF Screen Bypass
26	.05	200		DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
27	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	Conv. Screen Bypass
28	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	RF Screen Bypass
29	.05	200		DT4S5	TP426	S-4-05	TC-15	484-05	Feedback
30	200	500		5W5T2	MC237	MO.5-32	1FM-32	1468-0002	Output Grid Filter
31	200	500		5W5T2	MC237	MO.5-32	1FM-32	1468-0002	Audio Plate Bypass
32	500	500		5W5T5	MC245	MO.5-35	1FM-35	1468-0005	Diode Filter
33	75	500			MCB230		1FM-475	1469-000075	Fixed Padder
34	1050	300							" "
35	75	500			MCB230		1FM-475	1468-000075	Fixed Trimmer
36	300	500		5R5T3	MCB241	MOS.5-33	MS-33	1469-0003	Fixed Padder
37	4100	300							" "
38	51	500		5R5S5	MCB225	MOS.5-45	1FM-45	1469-00005	Fixed Trimmer
39	100	500		5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Osc. Grid Capacitor
40	150	500		5W5T15	MC236	MO.5-315	1FM-315	1468-00015	Fixed Trimmer
41	100	500		5R5T1	MCB235	MOS.5-31	MS-31	1469-0001	" "
42	91	500							" "
43	200	500		5W5T2	MC237	MO.5-32	1FM-32	1468-0002	RF Coupling
44	50	500		5W5S5	MC225	MO.5-45	1FM-45	1468-00005	Fixed Trimmer
45	130	500							" "
46	91	500							" "

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MIDWEST PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
47A	500KΩ	1	RV-3	TM233	D18-133X	T-66	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 47A per instructions
48A	500KΩ	1	RV-5	UM-156	D11-133	AM-58-S	Tone Control
B	Shaft		Not Req.	S525	E	KS8-2	Attach to 48A per instructions
C	Switch		" "	M26	41	SW-2	" " " " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MIDWEST PART No.	IRC PART No.	
49	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. RF Grid
50	47K	½		BTS-47K	Gray-Red-Or. RF Screen Dropping
51	22KΩ	2		BT-2-22K	Red-Red-Or. Converter Screen Dropping
52	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
53	240Ω	½		BW-½-220	Red-Yl.-Br. 1st IF Cathode
54	240Ω	½		BW-½-220	Red-Yl.-Br. 2nd IF Cathode
55	47KΩ	2		BT-2-47K	Yl.-Vi.-Or. Screen Dropping
56	15KΩ	½		BTS-15K	Br.-Grn.-Or. Diode RF Filter
57	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Diode Load
58	56KΩ	½		BTS-56K	Grn.-Blue-Or. Diode Load
59	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
60	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. " "
61	12KΩ	½		BTS-12K	Br.-Red-Or. Tone Compensation
62	4700Ω	½		BTS-4700	Yl.-Vi.-Red 1st AF Cathode
63	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
64	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 2nd AF Plate Load
65	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 2nd AF Grid
66	10KΩ	½		BTS-10K	Br.-Blk.-Or. 2nd AF Cathode
67	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
68	4700Ω	½		BTS-4700	Yl.-Vi.-Red Phase Inverter Cathode
69	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
70	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. " "
71	680KΩ	½		BTS-680K	Blue-Gray-Yl. Output Grid
72	270Ω	3		ABA-300	Red-Vi.-Br. Output Cathode-See Note 1
73	10KΩ	½		BTS-10K	Br.-Blk.-Or. Feedback
74	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid-See Note 2
75	4700Ω	½		BTS-4700	Yl.-Vi.-Red Filter - See Note 2
103	10Ω	½		BW-½-10	Br.-Blk.-Blk. Parasitic Suppressor
104	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Target Load

Note 1-On IRC replacement set slider 270Ω from one end.
Note 2-Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MIDWEST PART No.	STANCOR PART No.	THORDARSON PART No.	
76	117V AC @ 1.0A	680V AC @.110 A	5.2V AC @ 3.0A	6.5V AC @ 4.0A	TP-3	P-6314	T22R07	

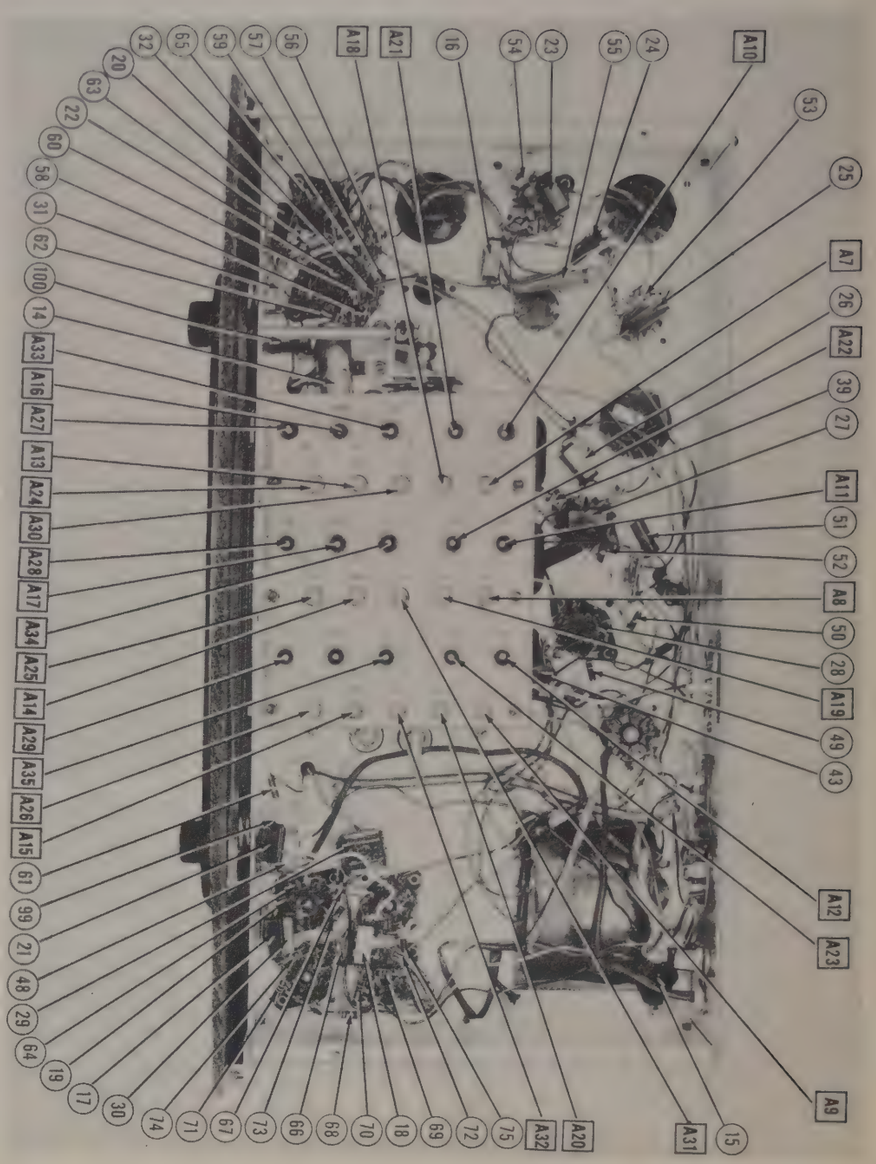
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MIDWEST PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
77	9000Ω CT	5.0Ω	390Ω CT	.3Ω	Part of SP-2	A-3824	T22S56		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MIDWEST PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
78	500Ω	5.0Ω	SP-2			
	CONE DIA.	VC DIA.				
79	11½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS *

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MIDWEST PART No.	MEISSNER PART No.	
80	Loop Ant. Band		1.2Ω			
81	Ant.Coil A	145Ω	46Ω	UK-5		Items 81 thru 85 are part of ant. coil assembly and obtained as complete assembly.
82	" " B		8Ω			
83	" " C	.6Ω	.6Ω			
84	" " D	.4Ω	.1Ω			
85	" " E	.2Ω	0Ω			
86	RF Coil A	145Ω	47Ω	UK-6		Items 86 thru 90 are part of RF coil assembly and obtained as complete assembly.
87	" " B	95Ω	3Ω			
88	" " C	.6Ω	.6Ω			
89	" " D	.4Ω	0Ω			
90	" " E	.1Ω	0Ω			
91	Osc. Coil A	1.2Ω	23Ω	UK-7		Items 91 thru 95 are part of Osc. coil assembly and obtained as complete assembly.
92	" " B	.8Ω	7Ω			
93	" " C	.5Ω	.7Ω			
94	" " D	.3Ω	.1Ω			
95	" " E		0Ω			
96	Input IF		7Ω	TR-6		
97	Inter. IF		7Ω	TR-6		
98	Output IF			TR-7		

*Include chassis serial number and model when ordering from manufacturer.

DIAL LIGHT

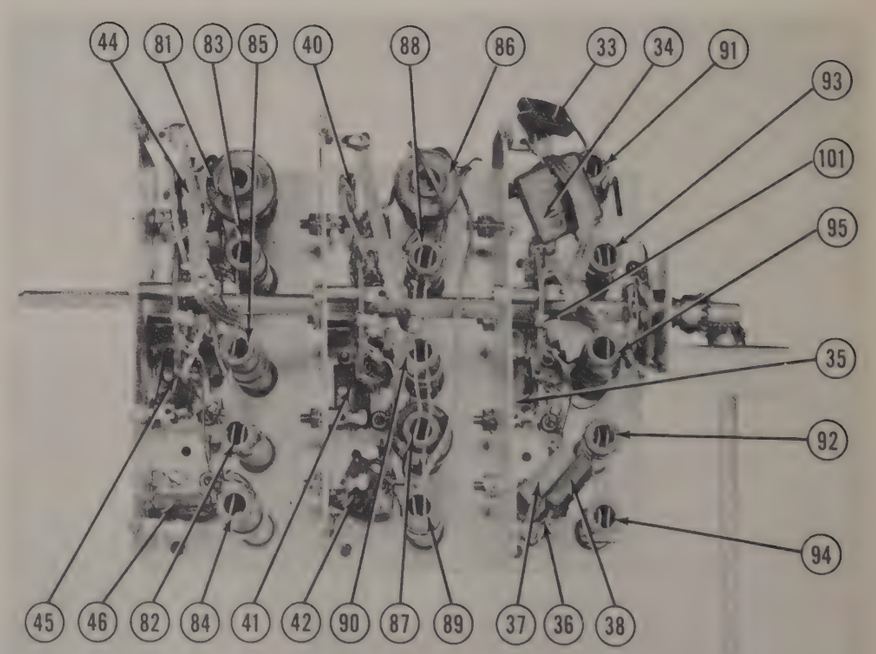
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MIDWEST PART No.		
99	Screw	6.8	0.25	Blue	IL-1		Type 46
100	"	"	"	"	"		"

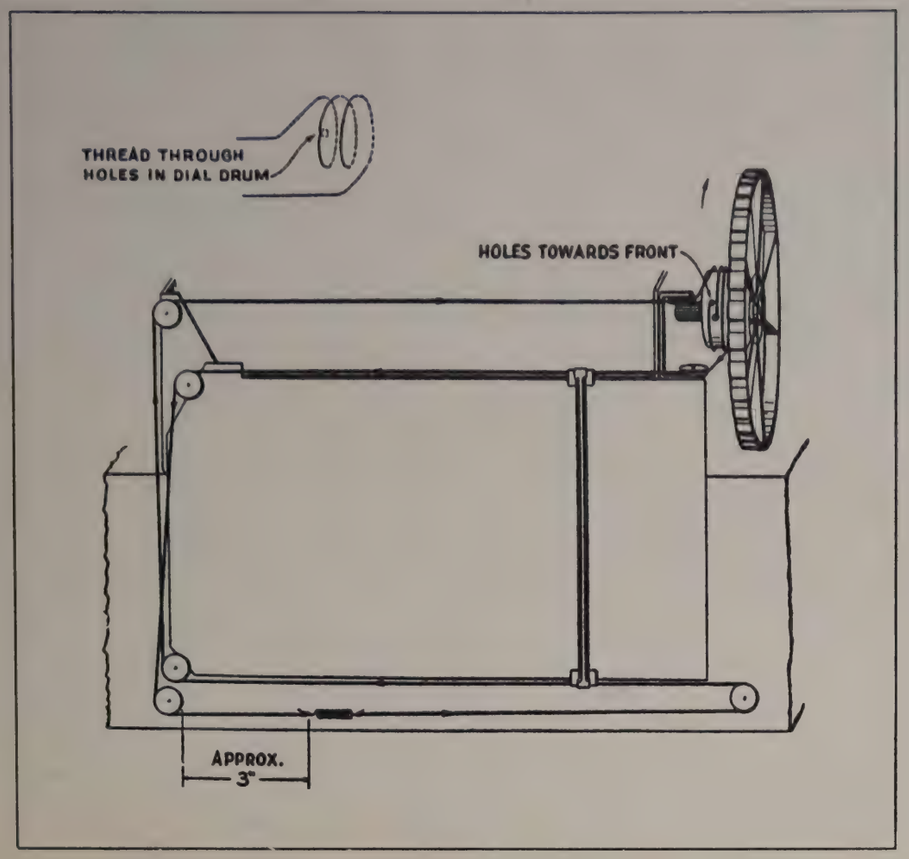
MISCELLANEOUS

ITEM No.	PART NAME	MIDWEST PART No.	NOTES
101	Bandswitch		
102	Tuning Cap.	CV-2-3	
	Dial	AD-2	
	Escutcheon	AE-1	
	Pointer	AP-6	

PUSHBUTTON ADJUSTMENTS

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Remove buttons. Loosen set screws for each button.
3. Manually tune in station desired to be set up and push in completely any button shaft.
4. Hold button shaft and tighten set screw firmly.
5. Check accuracy of setting by detuning with manual tuning control and retuning with button shaft. If setting is off, repeat Steps 2, 3 and 4.
6. Replace button.
7. To set up the remaining buttons follow the same procedure as outlined above.





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0V.	336 V.DC	125V.DC	0V.	0V.	-.5V.DC	0V.	6.5V.AC
2	7Q7	0V.	336 V.DC	116V.DC	-1.7 V.DC	0V.	-.2V.DC	0V.	6.5V.AC
3	7A7	0V.	336 V.DC	118V.DC	0V.	0V.	-.2V.DC	1.4V.DC	6.5V.AC
4	7A7	0V.	340V.DC	118V.DC	0V.	0V.	-.7 V.DC	2.0V.DC	6.5V.AC
5	7A6	0V.	0V.	0V.	0V.	0V.	-5.5V.DC	0V.	6.5V.AC
7	7A4	0V.	175 V.DC	240V.DC	0V.	0V.	0V.	7.8V.DC	6.5V.AC
8	7A4	0V.	210V.DC	0V.	340V.DC	11V.DC	0V.	11V.DC	6.5V.AC
9	7A4	0V.	185V.DC	0V.	0V.	0V.	0V.	8.3V.DC	6.5V.AC
10	7C5	0V.	330V.DC	320V.DC	240V.DC	0V.	0V.	19 V.DC	6.5V.AC
11	7C5	0V.	330V.DC	320V.DC	0V.	0V.	0V.	19 V.DC	6.5V.AC
12	5U4G	0V.	400V.DC	113V.AC	340V.AC	0V.	340V.AC	0V.	400V.DC

RESISTANCE READINGS

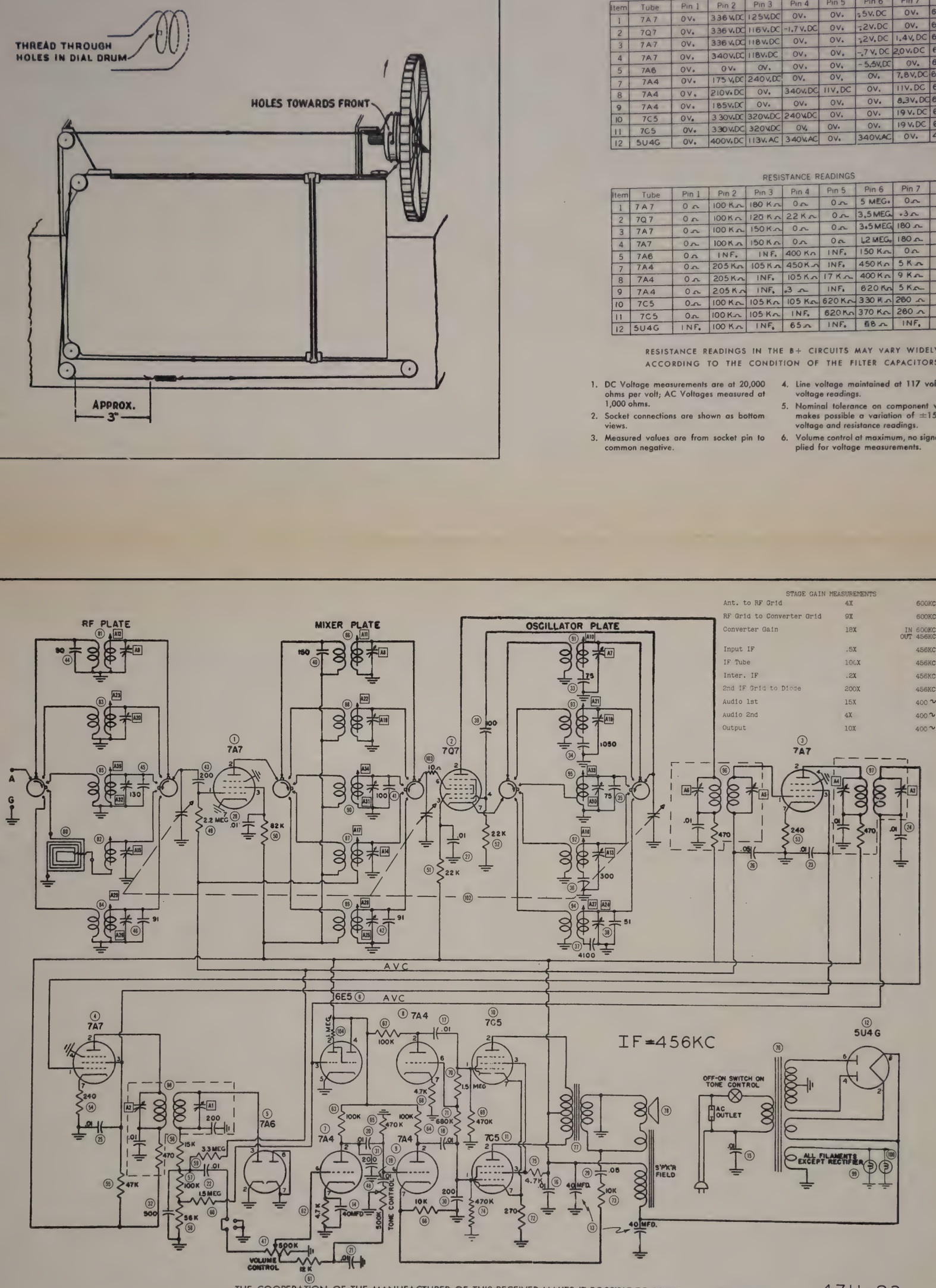
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0 Ω	100 KΩ	180 KΩ	0 Ω	0 Ω	5 MEG.	0 Ω	.1Ω
2	7Q7	0 Ω	100 KΩ	120 KΩ	22 KΩ	0 Ω	3.5 MEG.	.3Ω	.1Ω
3	7A7	0 Ω	100 KΩ	150 KΩ	0 Ω	0 Ω	3.5 MEG.	180 Ω	.1Ω
4	7A7	0 Ω	100 KΩ	150 KΩ	0 Ω	0 Ω	1.2 MEG.	180 Ω	.1Ω
5	7A6	0 Ω	INF.	INF.	400 KΩ	INF.	150 KΩ	0 Ω	.1Ω
7	7A4	0 Ω	205 KΩ	105 KΩ	450 KΩ	INF.	450 KΩ	5 KΩ	.1Ω
8	7A4	0 Ω	205 KΩ	INF.	105 KΩ	17 KΩ	400 KΩ	9 KΩ	.1Ω
9	7A4	0 Ω	205 KΩ	INF.	.3 Ω	INF.	620 KΩ	5 KΩ	.1Ω
10	7C5	0 Ω	100 KΩ	105 KΩ	105 KΩ	620 KΩ	330 KΩ	280 Ω	.1Ω
11	7C5	0 Ω	100 KΩ	105 KΩ	INF.	620 KΩ	370 KΩ	280 Ω	.1Ω
12	5U4G	INF.	100 KΩ	INF.	65 Ω	INF.	68 Ω	INF.	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

STAGE GAIN MEASUREMENTS

Ant. to RF Grid	4X	600KC
RF Grid to Converter Grid	9X	600KC
Converter Gain	18X	IN 600KC OUT 456KC
Input IF	.5X	456KC
IF Tube	100X	456KC
Inter. IF	.2X	456KC
2nd IF Grid to Diode	200X	456KC
Audio 1st	15X	400 ~
Audio 2nd	4X	400 ~
Output	10X	400 ~

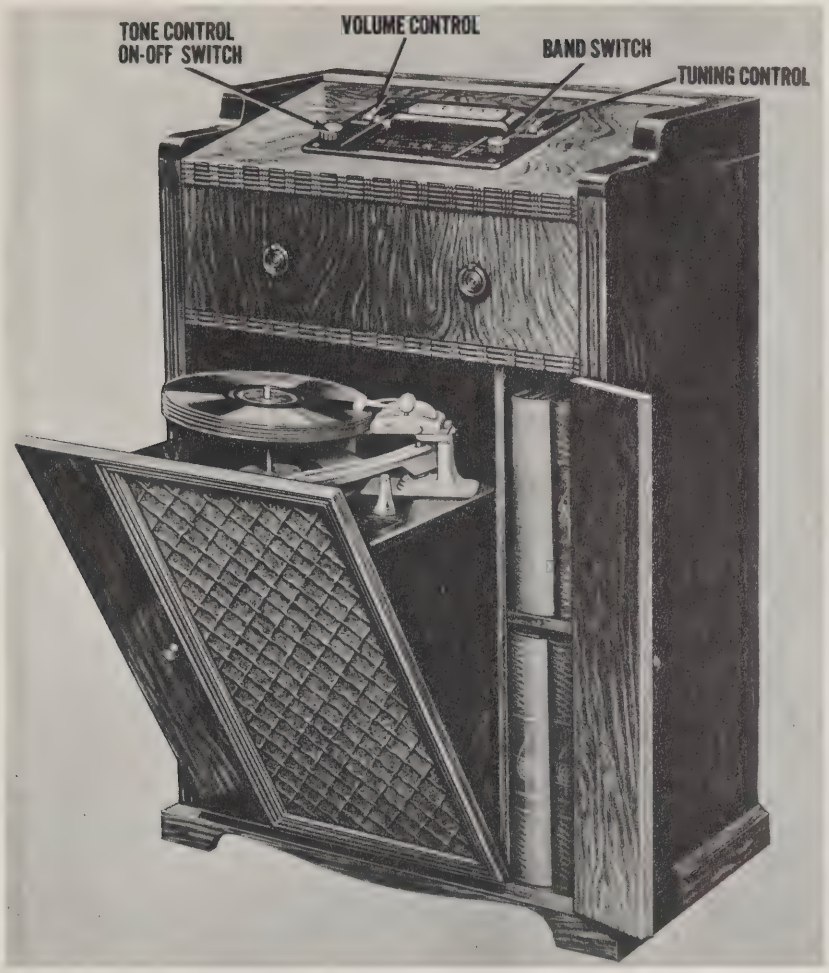


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4711-23

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

MIDWEST
MODELS S-16, SG-16, ST-16 (CH. SGT-16)



MIDWEST MODEL ST-16

TRADE NAME	Midwest, Models S-16, SG-16, ST-16 (Ch. SGT-16)
MANUFACTURER	Midwest Radio Corp., 909 Broadway, Cincinnati 2, Ohio
TYPE SET	AC Operated FM-AM Superheterodyne with Loop Antenna & Phono Provisions
TUBES (SIXTEEN)	Types, 6BA6 FM RF Amp., 6BE6 FM Mixer, 6C4 FM Osc., 7A7 AM RF Amp., 7Q7 AM Converter, 7A7 IF Amp., 7A7 IF Amp., 6AL5 FM Det., 7A6 AM Det., 6E5 Tuning Ind., 7A4 1st AF Amp., 7A4 2nd AF Amp., 7A4 Phase Inverter, (2) 7C5 Power Output, 5U4G Rectifier.
POWER SUPPLY	105 - 125 Volts AC
RATING	1.1 Amp. @ 117 Volts AC
TUNING RANGE -	BROADCAST 540-1650KC SHORT WAVE 1.6-4.8 MC, 4.8-10.8 MC, 10.8-22.5MC FM 88-108MC

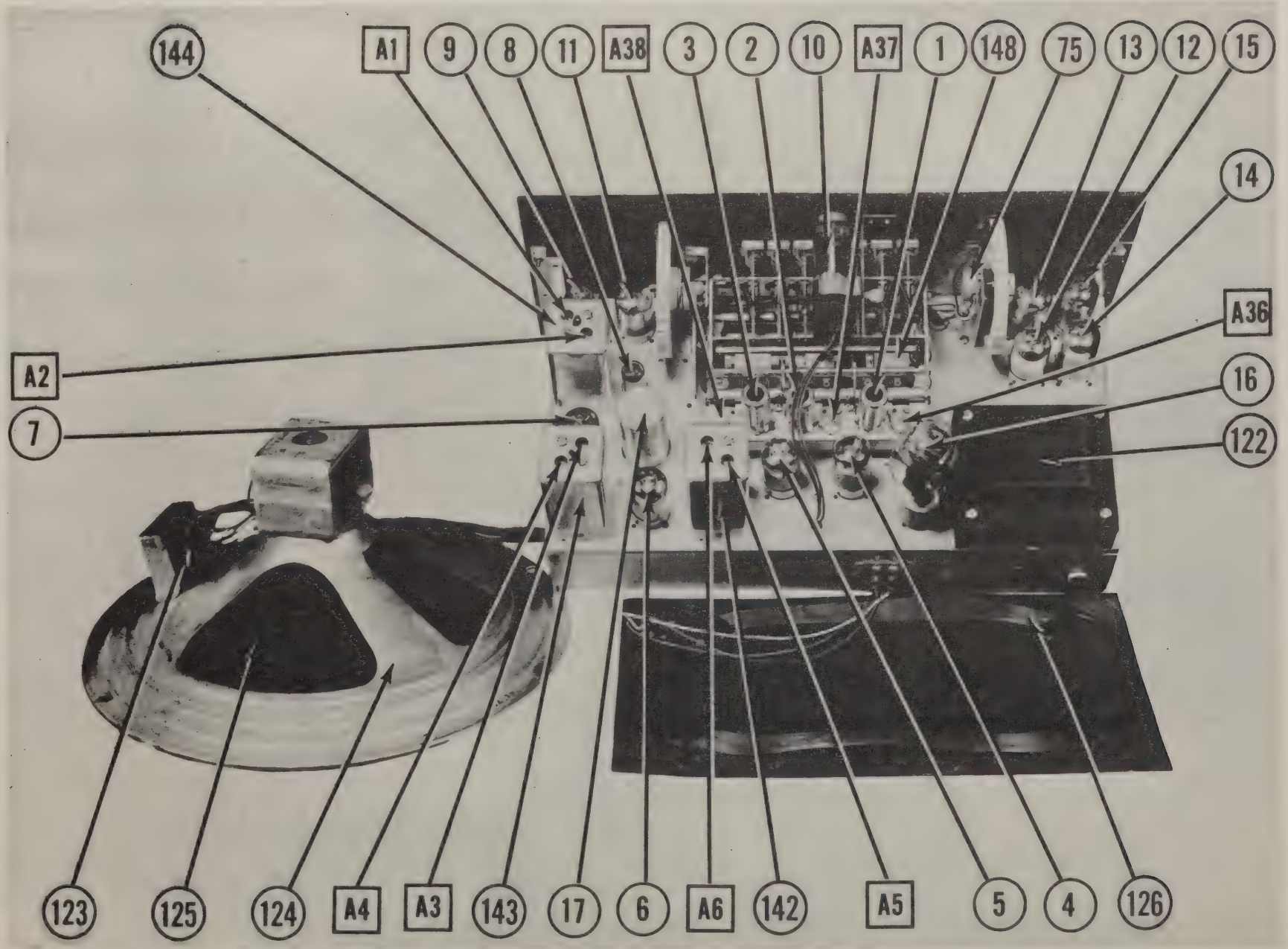
MIDWEST
MODELS S-16, SG-16, ST-16 (CH. SGT-16)

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

SET #21 DATE 7/47 FOLDER #4711-24

CHASSIS—TOP VIEW



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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MIDWEST PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM RF Amp.	6BA6	6BA6	7BK	
2	FM Mixer	6BE6	6BE6	7CH	
3	FM Oscillator	6C4	6C4	6BG	
4	AM RF Amp.	7A7	7A7	8V	
5	AM Converter	7Q7	7Q7	8AL	
6	IF Amp.	7A7	7A7	8V	
7	IF Amp.	7A7	7A7	8V	
8	FM Detector	6AL5	6AL5	6BT	
9	AM Detector	7A6	7A6	7AJ	
10	Tuning Indicator	6E5	6E5	6R	
11	1st AF Amp.	7A4	7A4	5AC	
12	2nd AF Amp.	7A4	7A4	5AC	
13	Phase Inverter	7A4	7A4	5AC	
14	Power Output	7C5	7C5	6AA	
15	Power Output	7C5	7C5	6AA	
16	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	MIDWEST PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
17A	40	450	CE-6	UP9BJ39	FP238	DY-2x40-450	EL-240	AF88J	■ Filter
B	40	450							▲ "
18	40	25	CE-4	BR502	TP29	M-50-25	TA-50	PRS25-50	Audio Cath. Bypass
19	8	150	CE-7	BR815	TC42	M-8-150	UT-81	PRS150-8	Ratio Det. Bias
20	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	Line Bypass
21	.05	200		DT4S5	TP426	S-4-05	TC-15	484-05	Feedback
22	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	Audio Coupling
23	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	" "
24	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	" "
25	.01	200		DT4S1	TP410	S-4-01	TC-11	484-01	Tone Compensation
26	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	" "
27	.05	200		DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
28	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
29	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	" "
30	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	
31	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	2nd IF Plate Decoup.
32	.01	200		DT6S1	TP421	S-4-01	TC-11	484-01	2nd IF Screen Bypass
33	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	AVC Filter
34	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	1st IF Plate Decoup.
35	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	1st IF Screen Bypass
36	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	AVC Filter
37	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	AM Conv. Plate Decoup.
38	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	RF Bypass Pwr. Supp.
39	.01	800		DT6S1	TP410	S-6-01	TC-11	684-01	AM Conv. Screen Bypass
40	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	AM RF Screen Bypass
41	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	AVC Stabilization *
42	.01	200		DT4S1	TP421	S-4-01	TC-11	484-01	2nd IF Cath. Bypass *
43	200	500		5W5T2	MC237	MO.5-32	1FM-32	1468-0002	1st IF Cath. Bypass *
44	200	500		5W5T2	MC237	MO.5-32	1FM-32	1468-0002	Output Grid Filter
45	100			5W5T1	MC235	MO.5-31	1FM-31	1468-0001	1st Audio Plate Bypass
46	100			5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Ratio Det. Load Cer.
47	2000	300		1W5D2	MC457	MW.5-22	1FM-22	1467-002	" " " "
48	200	500		5W5T2	MC237	MO.5-32	1FM-32	1468-0002	De-emphasis
49	500	500		5W5T5	MC245	MO.5-35	1FM-35	1468-0005	Diode Filter
50	1050	300							" "
51	75	500		5W5Q75	MC230	MOS.5-475	1FM-475	1468-000075	Fixed Padder
52	300	500		5R5T3	MCB241	MOS.5-33	MS-33	1469-0003	Fixed Trimmer
53	4100	300							Fixed Padder
54	51	500		5R5Q5	MCB225	MOS.5-45	MS-45	1469-00005	" "
55	100			5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Fixed Trimmer
56	100	500		5R5T1	MCB235	MOS.5-31	MS-31	1469-0001	Osc. Grid Capacitor Cer
57	91	500							Fixed Trimmer
58	200	500		5W5T2	MC237	MO.5-32	1FM-32	1468-0002	" "
59	130	500							RF Coupling
60	91	500							Fixed Trimmer
61	100								" "
62	50								FM Osc. Plate Bypass
63	5								Osc. Grid Capacitor
									Osc. Coupling

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	MIDWEST PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
64	100								FM Mixer Screen Bypass
65	100								FM Mixer Fil. Bypass
66	100								FM Mixer Cath. Bypass
67	100								Fixed Padder
68	50								RF Coupling
69	100								FM RF Screen Bypass
70	100								FM RF Fil. Bypass
71	100								FM RF Cath. Bypass
72	100								Fixed Padder
73	50								" "
74	150	500		5W5T15	MC236	MO.5-315	1FM-315	1468-00015	Fixed Trimmer *

*Not used in later productions.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	MIDWEST PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
75A	500KΩ	1	RV-3	TM233	D18-133X	T-88	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 75A per instructions
76A	500KΩ	1	RV-5	UM-156	D11-133	AM-58-S	Tone Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 76A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	MIDWEST PART No.	IRC PART No.	IDENTIFICATION CODES
77	100Ω	½		BW-½-100	Br.-Blk.-Br. FM-RF Cathode
78	100KΩ	½		BTS-100K	Br.-Blk.-Yl. FM-RF Screen Dropping-See Note 1
79	1600Ω	½		BTS-1500	Br.-Blue-Red FM-RF Plate Load - See Note 4
80	100Ω	2		BW-½-100	Br.-Br.-Br. FM Mixer Cathode
81	22KΩ	2		BT-2-22K	Red-Red-Or. FM Mixer Screen Dropping
82	47KΩ	½		BTS-47K	Yl.-Vi.-Or. FM Mixer Grid
83	22KΩ	½		BTS-22K	Red-Red-Or. FM Oscillator Grid
84	12KΩ	2		BT-2-12K	Br.-Red-Or. FM Oscillator Plate Load
85	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. RF Grid
86	82KΩ	½		BTS-82K	Gray-Red-Or. RF Screen Dropping
87	22KΩ	2		BT-2-22K	Red-Red-Or. Converter Screen Dropping
88	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
89	10Ω	½		BW-½-10	Br.-Blk.-Blk. Parasitic Suppressor
90	220Ω	½		BW-½-220	Red-Red-Br. 1st IF Cathode
91	470Ω	½		BTS-470	Yl.-Vi.-Br. 1st IF Screen Decoupling - See Note 5
92	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st IF Transformer Shunt-See Note 2
93	150KΩ	½		BTS-150K	Br.-Grn.-Yl. AVC Network - See Note 5
94	220Ω	½		BW-½-220	Red-Red-Br. 2nd IF Cathode
95	47KΩ	2		BT-2-47K	Yl.-Vi.-Or. Screen Dropping
96	470Ω	½		BTS-470	Yl.-Vi.-Br. 2nd IF Plate Decoupling
97	15KΩ	½		BTS-15K	Br.-Grn.-Or. Diode RF Filter
98	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Diode Load
99	56KΩ	½		BTS-56K	Grn.-Blue-Or. Diode Load-See Note 4
100	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network-See Note 4
101	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. AVC Network-See Note 4
102	22KΩ	½		BTS-22K	Red-Red-Or. De-emphasis Network
103	15KΩ	½		BTS-15K	Br.-Grn.-Or. Ratio Detector Bias Network
104	15KΩ	½		BTS-15K	Br.-Grn.-Or. Ratio Detector Bias Network
105	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network
106	12KΩ	½		BTS-12K	Br.-Red-Or. Tone Compensation
107	4700Ω	½		BTS-4700	Yl.-Vi.-Red 1st AF Cathode
108	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
109	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 2nd AF Plate Load
110	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 2nd AF Grid
111	10KΩ	½		BTS-10K	Br.-Blk.-Or. 2nd AF Cathode
112	4700Ω	½		BTS-4700	Yl.-Vi.-Red Phase Inverter Cathode
113	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
114	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MIDWEST PART No.	IRC PART No.	
115	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. Output Grid
116	680KΩ	½		BTS-680K	Blue-Gray-Yl. Output Grid
117	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid - See Note 5
118	270Ω	3		ABA-300	Red-Vi.-Br. Output Cathode-See Note 3
119	10KΩ	½		BTS-10K	Br.-Blk.-Or. Feedback
120	4700Ω	½		BTS-4700	Yl.-Vi.-Red Output Screen Dropping-See Note 2
121	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. AVC Network-See Note 5
150	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Target Resistor

Note 1 - Some models use 150KΩ in this application. IRC replacement BTS-150K.
Note 2 - Not used in all models.
Note 3 - On IRC replacement set slider 270Ω from one end.
Note 4 - Used in early production only.
Note 5 - Used in later production only.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MIDWEST PART No.	STANCOR PART No.	THORDARSON PART No.	
122	117V AC @ 1.1A	550V CT @ .117A	5.2V AC @ 3.0A	6.5V AC @ 4.0A	TP-3	P-6314	T22R07	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MIDWEST PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
123	9000Ω CT	5.0Ω	360Ω CT	.3Ω	Part of SP-2	A-3804	T22S56		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MIWEST PART No.	JENSEN PART No.		
124	FIELD RES. 500Ω	VC IMP. 5.0Ω	SP-2			
125	CONE DIA. 11½"	VC DIA. 1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MIDWEST PART No.	MEISSNER PART No.	
126	Loop Ant.	.1Ω	1.2Ω			
127	Ant. Coil (B)		.8Ω	UK-8§		Items 127, 128, 129 and 130 are part of ant. plate assembly and are obtained as complete assembly.
128	" " (C)	.5Ω	.8Ω	UK-8§		
129	" " (D)	.5Ω	0Ω	UK-8§		
130	" " (E)	.2Ω	0Ω	UK-8§		
131	" " (FM)	1.2Ω	0Ω			
132	RF Coil (B)	3Ω	4Ω	UK-9§		Items 132, 133, 134 and 135 are part of RF plate assembly and obtained as complete assembly.
133	" " (C)	.6Ω	.6Ω	UK-9§		
134	" " (D)	.4Ω	0Ω	UK-9§		
135	" " (E)	.2Ω	0Ω	UK-9§		
136	" " (FM)		0Ω			
137	Osc.Coil (B)	.5Ω	5Ω	UK-10§		
138	" " (C)	.4Ω	.7Ω	UK-10§		
139	" " (D)	.2Ω	0Ω	UK-10§		
140	" " (E)		0Ω	UK-10§		
141	" " (FM)		0Ω			
142A	Input IF (AM)	6Ω	6Ω	TR-8§		Items 142A&142B are contained in same can.
B	" " (FM)	1.5Ω	2.5Ω	TR-8§		
143A	Inter.IF (AM)	6.5Ω	6.5Ω	TR-9§		Items 143A&143B are contained in same can.
B	" " (FM)	2.5Ω	2.5Ω	TR-9§		
144A	Output IF	6.5Ω	6.5Ω	TR-10§		Items 144A&144B are contained in same can.
B	Disc.Trans.	2.5Ω	2.5Ω			

§Include chassis serial number and model when ordering parts from manufacturer.

PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

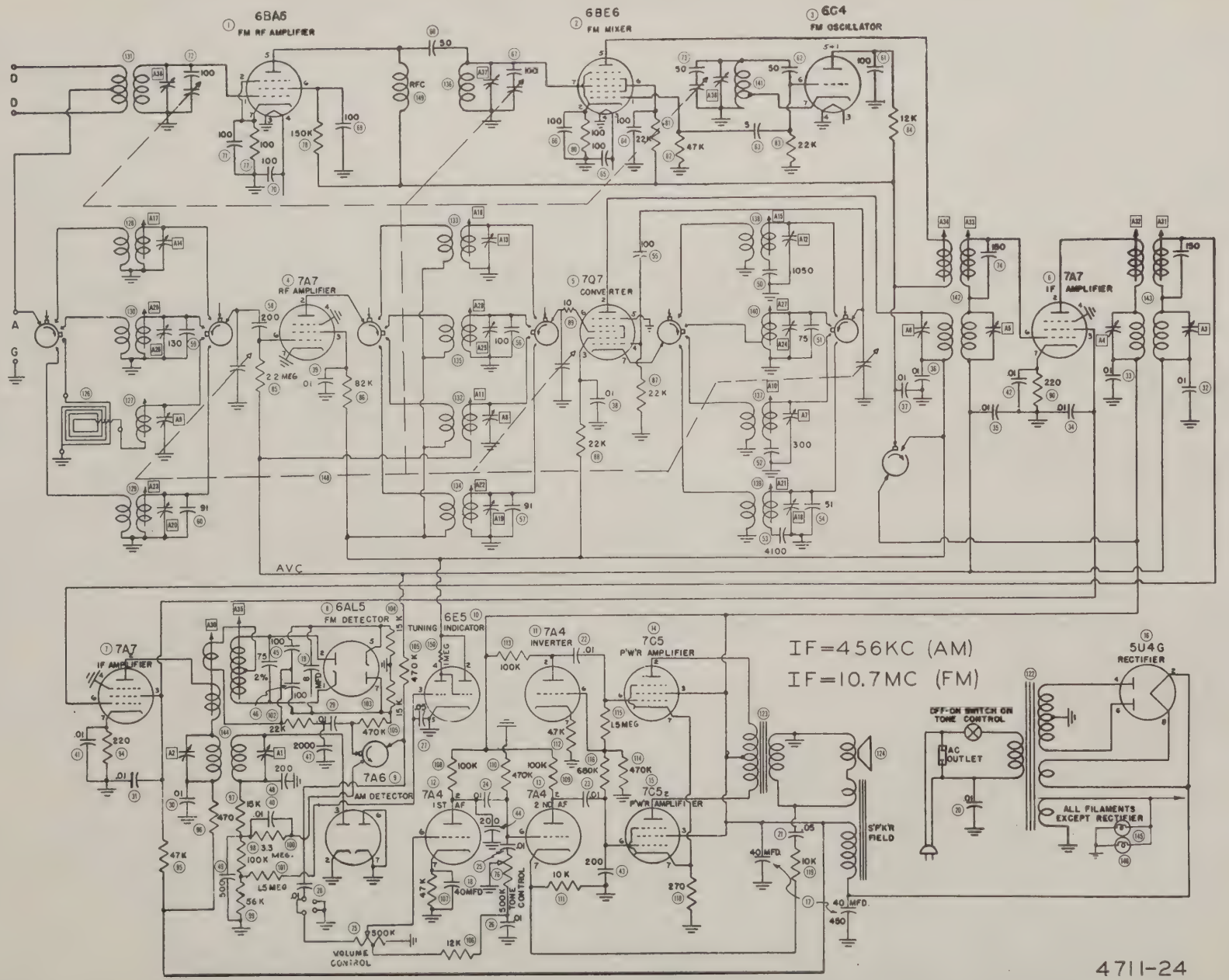
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MIDWEST PART No.		
145	Screw	6-8	0.25	Blue	IL-1		Type 46
146	"	"	"	"	IL-1		" "

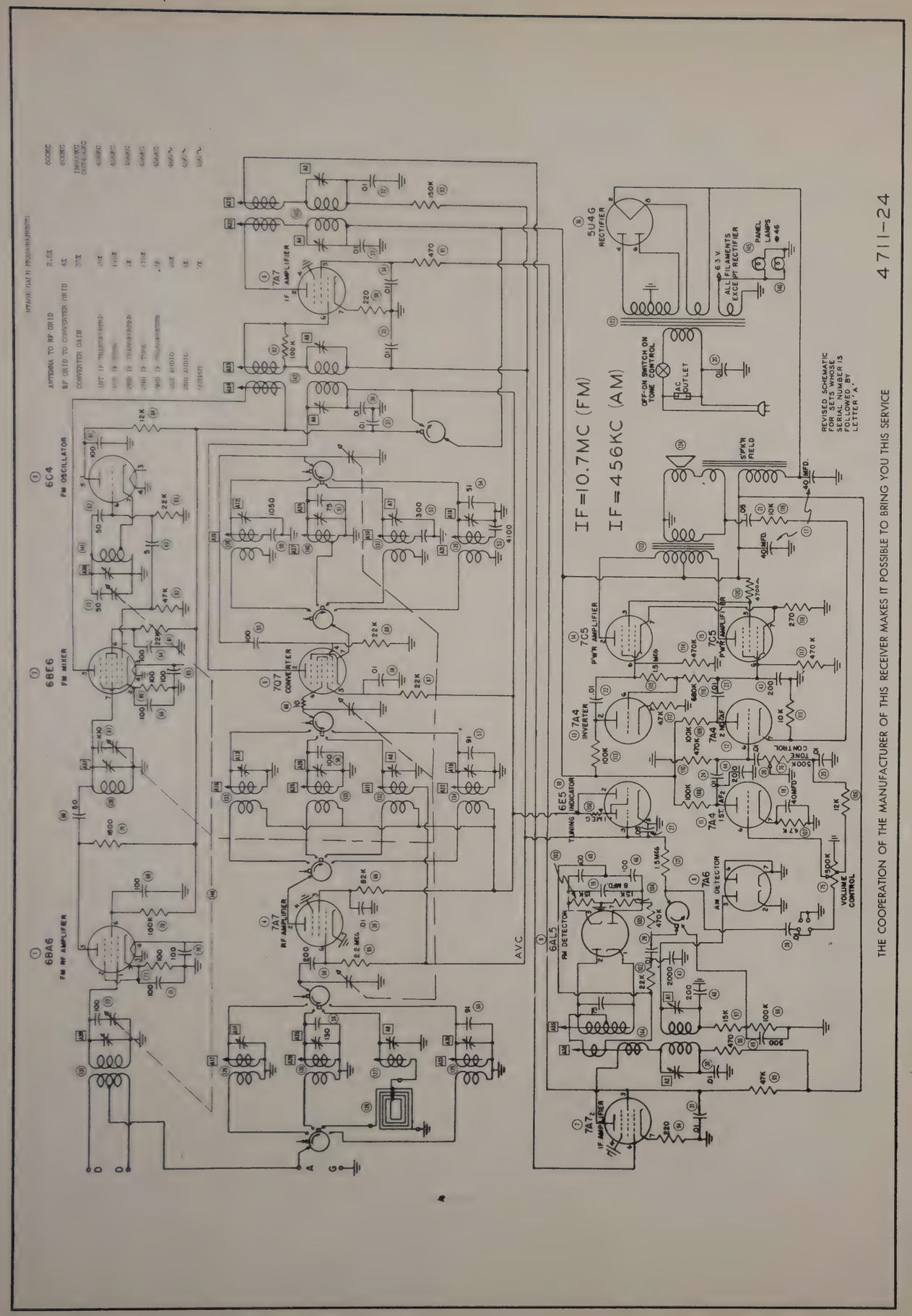
MISCELLANEOUS

ITEM No.	PART NAME	MIDWEST PART No.	NOTES
147	Bandswitch		
148	Tuning Cap.	CV-2-3	12-502 MMF (AM Sections)
149	RF Plate Choke	UK-8	
	Dial	AD-4	8-34 MMF (FM sections)
	Escutcheon	AE-1	
	Pointer	AP-6	
	Pushbutton Assembly	KB-6	

PUSHBUTTON ADJUSTMENTS

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Remove buttons and loosen set screws for each button.
3. Manually tune in station desired to be setup and push in completely any button shaft.
4. Hold button shaft in and tighten set screw firmly.
5. Check accuracy of setting by detuning with the manual tuning control and retuning with pushbutton shaft. If setting is off repeat Steps 2, 3 and 4.
6. Replace button.
7. To set up the remaining buttons follow the same procedure as outlined above.


6BA5
FM RF AMPLIFIER
6BE6
FM MIXER
6C4
FM OSCILLATOR
7A7
RF AMPLIFIER
7Q7
CONVERTER
7A7
IF AMPLIFIER
6AL5
FM DETECTOR
6E5
TUNING INDICATOR
7A7
IF AMPLIFIER
7A4
INVERTER
7C5
P'W'R AMPLIFIER
7A6
AM DETECTOR
7A4
1ST AF
7A4
2ND AF
7C5
P'W'R AMPLIFIER
5U4G
RECTIFIER
AVC
IF=456KC (AM)
IF=10.7MC (FM)
OFF-ON SWITCH ON TONE CONTROL
AC OUTLET
ALL FILAMENTS EXCEPT RECTIFIER
S'PK'R FIELD
VOLUME CONTROL
TONE CONTROL
4711-24



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

* MEASURED IN F M POSITION
VOLTAGE & RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

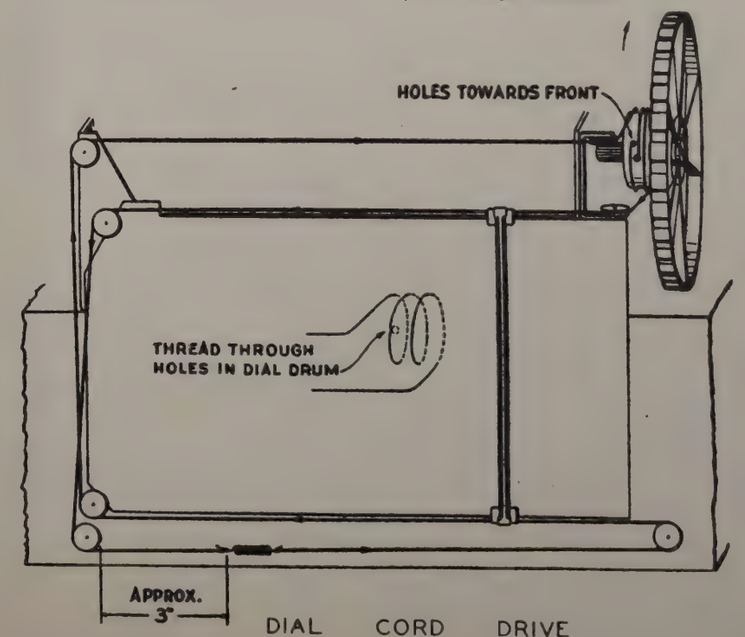
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	6BA6	0V.	1V.DC	0V.	6.5V. AC	*323V.DC	*70V.DC	1V. DC	
2	6BE6	0V.	1.45V. DC	6.5V. AC	0V.	*340V.DC	*132V.DC	0V.	
3	6C4	*170V.DC	0V.	6.5V. AC	0V.	*170V.DC	*-25V.DC	0V.	
4	7A7	0V.	342V.DC	90V.DC	0V.	0V.	-1V. DC	0V.	6.5V. AC
5	7Q7	0V.	345V.DC	95V.DC	-5V.DC	0V.	-55V.DC	0V.	6.5V. AC
6	7A7	0V.	340V.DC	110V.DC	0V.	0V.	-55V.DC	2.3V. DC	6.5V. AC
7	7A7	0V.	340V.DC	112V.DC	0V.	0V.	-2 V. DC	2.3V. DC	6.5V. AC
8	6AL5	0V.	0V.	6.5V. AC	0V.	.3V. DC	0V.	-3V. DC	
9	7A6	0V.	0V.	0V.	0V.	0V.	-5V. DC	0V.	6.5V. AC
11	7A4	0V.	180V.DC	242V.DC	0V.	0V.	0V.	8.2V. DC	6.5V. AC
12	7A4	0V.	217V.DC	0V.	342V.DC	11.5V. DC	0V.	12V. DC	6.5V. AC
13	7A4	0V.	185V. DC	0V.	0V.	0V.	0V.	8.3V. DC	6.5V. AC
14	7C5	0V.	340V. DC	323V. DC	342V. DC	0V.	0V.	16V. DC	6.5V. AC
15	7C5	0V.	336V. DC	338V. DC	0V.	0V.	0V.	16V. DC	6.5V. AC
16	5U4G	0V.	400V. DC	0V.	340V. AC	340V. DC	340V. AC	0V.	400V DC

RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	6BA6	0 Ω	96 Ω	0 Ω	.1 Ω	*122 KΩ	*220KΩ	96 Ω	
2	6BE6	48 KΩ	95 Ω	.1 Ω	0 Ω	*120 KΩ	*140 KΩ	0 Ω	
3	6C4	*130 KΩ	INF.	.1 Ω	0 Ω	*130 KΩ	22 KΩ	0 Ω	
4	7A7	0 Ω	120 KΩ	200KΩ	0 Ω	0 Ω	3.5MEG.	0 Ω	.1 Ω
5	7Q7	0 Ω	120 KΩ	140 KΩ	19 KΩ	0 Ω	1.5MEG.	.5 Ω	.1 Ω
6	7A7	0 Ω	120 KΩ	170 KΩ	0 Ω	0 Ω	1.7MEG.	180 Ω	.1 Ω
7	7A7	0 Ω	120 KΩ	170 KΩ	0 Ω	0 Ω	1.7MEG.	180 Ω	.1 Ω
8	6AL5	INF.	INF.	.1 Ω	0 Ω	14 KΩ	0 Ω	14KΩ	
9	7A6	0 Ω	INF.	INF.	460KΩ	INF.	115 KΩ	0 Ω	.1 Ω
11	7A4	0 Ω	220KΩ	120KΩ	INF.	INF.	500 KΩ	4.5 KΩ	.1 Ω
12	7A4	0 Ω	220KΩ	INF.	120KΩ	18KΩ	460 KΩ	9 KΩ	.1 Ω
13	7A4	0 Ω	220KΩ	INF.	.3 Ω	INF.	600KΩ	4.2 KΩ	.1 Ω
14	7C5	0 Ω	120 KΩ	125 KΩ	125KΩ	600 KΩ	320 KΩ	250 Ω	.1 Ω
15	7C5	0 Ω	120 KΩ	125 KΩ	INF.	600 KΩ	340 KΩ	250 Ω	.1 Ω
15	5U4G	INF.	120KΩ	INF.	78 Ω	120 KΩ	72 Ω	INF.	120 KΩ

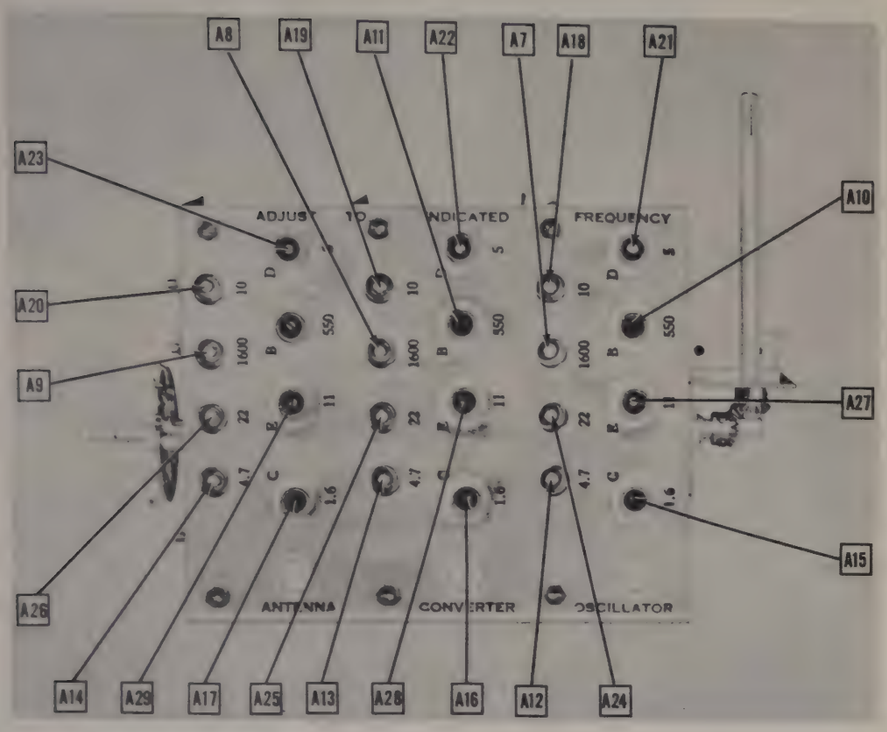
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

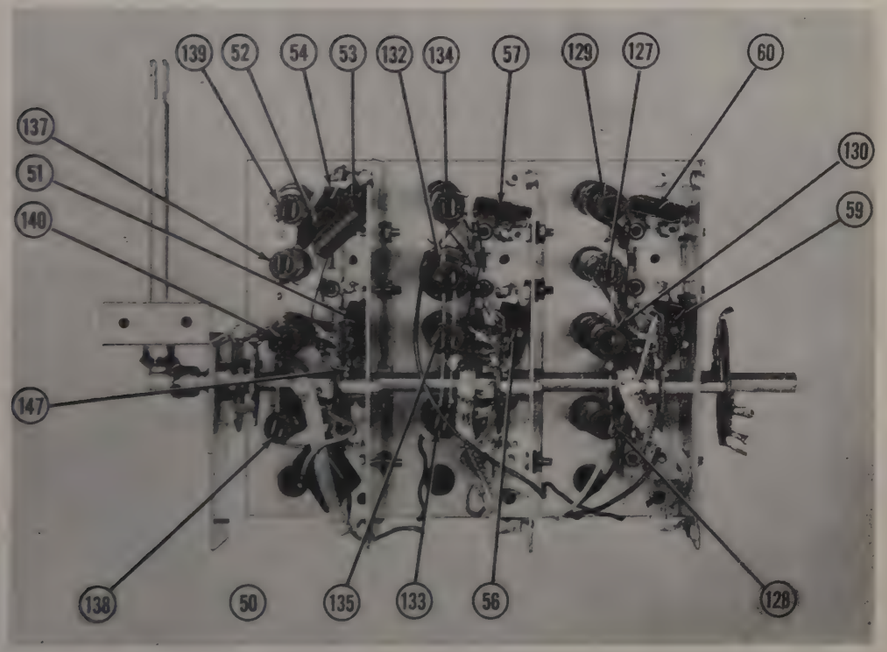


DIAL CORD DRIVE

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT								
To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.								
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD.	High side to Pin 6 (grid) of 7Q7. Low side to chassis.	456KC	B	1000KC	VTVM connected to AVC and chassis.	A1,A2, A3,A4, A5,A6.	Adjust for maximum deflection.
2	400Ω in series with 200 MMFD.	High side to "A" terminal on ant. term. strip. Low side to chassis.	1600KC	"	1600KC	"	A7,A8, A9.	"
3	"	"	550KC	"	550KC	"	A10,A11	Adjust for maximum deflection. Repeat Steps 2 and 3 until no further improvement can be made.
4	"	"	4.7MC	C	4.7MC	"	A12,A13 A14.	Adjust for maximum deflection.
5	"	"	1.6MC	"	1.6MC	"	A15,A16 A17.	Adjust for maximum deflection. Repeat Steps 4 and 5 until no further improvement can be made.
6	"	"	10MC	D	10MC	"	A18,A19 A20.	Adjust for maximum deflection.
7	"	"	5MC	"	5MC	"	A21,A22 A23.	Adjust for maximum deflection. Repeat Steps 6 and 7 until no further improvement can be made.
8	"	"	22MC	E	22MC	"	A24,A25 A26.	Adjust for maximum deflection.
9	"	"	11.5MC	"	11.5MC	"	A27,A28 A29.	Adjust for maximum deflection. Repeat Steps 8 and 9 until no further improvement can be made.
10	DIRECT	High side to Pin 7 (grid) 6BE6. Low side to chassis.	10.7MC unmodulated	A	100MC	"	A30,A31 A32,A33 A34.	Adjust for maximum deflection.
11	"	"	10.7MC amp. modulated	"	100MC	Across voice coil	A35	Adjust for minimum output.
12	150Ω in series with high & low sides of signal gen.	Connect to dipole terminals.	105MC unmodulated	"	105MC	Same as in Steps 1 thru 10.	A36,A37 A38.	Adjust for maximum deflection.

SUPPLEMENT

MOTOROLA MODEL 405M

This model is the same as Motorola Model 405 except that this receiver employes minature type tubes and has the following parts list changes. For service and parts information not included in this sheet refer to Set No. 3 Folder 463-8.

MOTOROLA SUPPLEMENT
MODEL 405 M

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	RF Amp.	6BA6	6BA6	7BK	
2A	Converter	6BE6	6BE6	7CH	
3A	IF Amp.	6BA6	6BA6	7BK	
4A	Det.-AVC-AF	6AT6	6AT6	7BT	
6A	Rectifier	6X4	6X4	15BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	400	23A75429	UP2245C	FP339	DY-312	EL-322	AF44J4A	■ Filter
B	20	400							▲ "
C	20	25							Bias Filter
19	100	500		5W5T1	MC235	MO.5-35	1FM-35	1468-0005	Diode Filter
23	NOT USED								

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
37	NOT USED				
58	47Ω	½		BW-½-47	Yl.-Vi.-Blk. RF Cathode
59	47Ω	½		BW-½-47	Yl.-Vi.-Blk. IF Cathode

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
	FIELD RES.	VC IMP.				
45	7.0Ω	3.4Ω	50B71995			
	CONE DIA.	VC DIA.				
46	5-1/8"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT		

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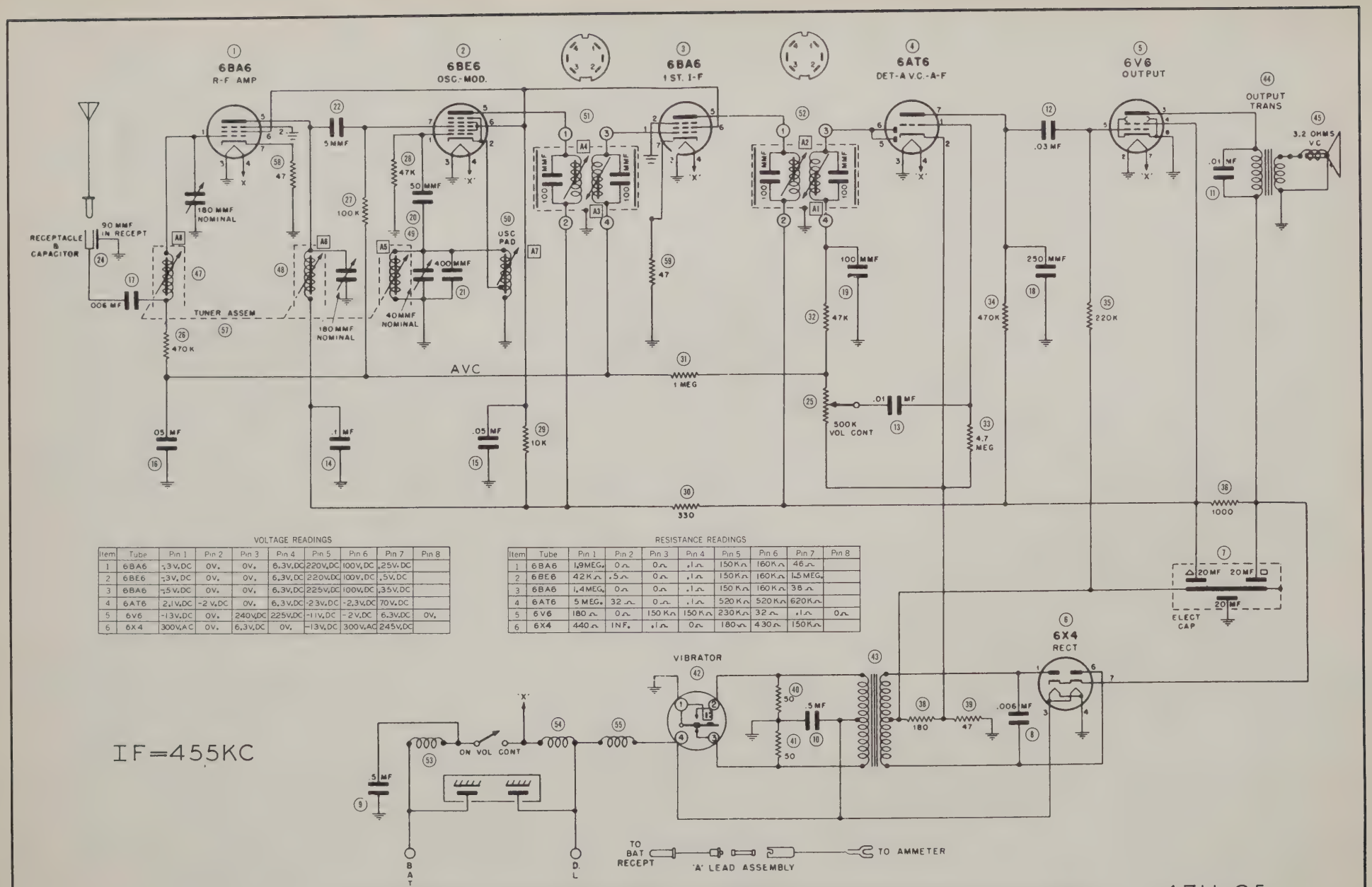
SET #21 DATE 7/47 FOLDER #4711-25



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	-3V.DC	0V.	0V.	6.3V.DC	220V.DC	100V.DC	-25V.DC	
2	6BE6	-3V.DC	0V.	0V.	6.3V.DC	220V.DC	100V.DC	-.5V.DC	
3	6BA6	-5V.DC	0V.	0V.	6.3V.DC	225V.DC	100V.DC	-35V.DC	
4	6AT6	2.1V.DC	-2 V.DC	0V.	6.3 V.DC	-23V.DC	-2.3V.DC	70V.DC	
5	6V6	-13V.DC	0V.	240V.DC	225V.DC	-11V.DC	-2V.DC	6.3V.DC	0V.
6	6X4	300V.AC	0V.	6.3V.DC	0V.	-13V.DC	300V.AC	245V.DC	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	1.9MEG.	0Ω	0Ω	.1Ω	150KΩ	160KΩ	46Ω	
2	6BE6	42KΩ	.5Ω	0Ω	.1Ω	150KΩ	160KΩ	1.5MEG.	
3	6BA6	1.4MEG.	0Ω	0Ω	.1Ω	150KΩ	160KΩ	38Ω	
4	6AT6	5 MEG.	32Ω	0Ω	.1Ω	520KΩ	520KΩ	620KΩ	
5	6V6	180Ω	0Ω	150 KΩ	150 KΩ	230KΩ	32Ω	.1Ω	0Ω
6	6X4	440Ω	INF.	.1Ω	0Ω	180Ω	430Ω	150KΩ	

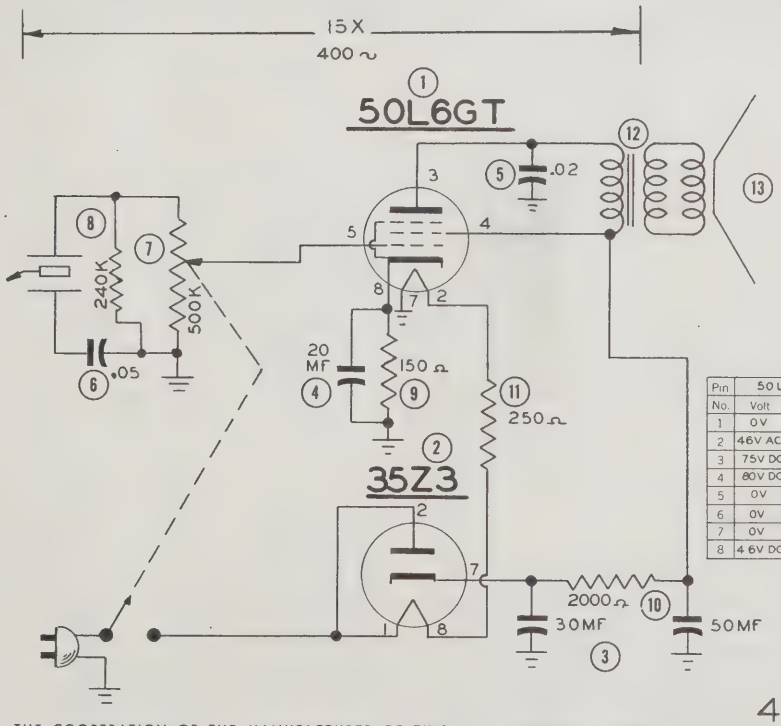
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4711-25

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MUSITRON MODEL 105

TRADE NAME	Musitron, Model 105
MANUFACTURER	The Musitron Co., 223 Erie St., Chicago 10, Ill.
TYPE SET	AC Operated Phonograph with 2 Tube Amplifier & Speaker
TUBES (TWO)	Types, 50L6GT Power Output, 35Z3 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .190 Amp. @ 117 Volts AC



Pin No.	50L6G Volt	50L6G Res	35Z3 Volt	35Z3 Res
1	0V	INF	117V AC	310 Ω
2	46V AC	44 Ω	117V AC	310 Ω
3	75V DC	70K Ω	0V	INF
4	80V DC	70K Ω	0V	INF
5	0V	160K Ω	0V	INF
6	0V	0 Ω	0V	INF
7	0V	0 Ω	140V DC	70K Ω
8	46V DC	140 Ω	85V AC	290 Ω

4711-26

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MUSITRON PART No.	STANDARD REPLACEMENT		
1	Power Output	50L6GT	50L6GT	7AC	
2	Rectifier	35Z3	35Z3	4Z	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MUSITRON PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
3A	30	150		BRD3515	2N520	M-5030-150	TA-530	PRSA150-50-30	Filter - Green
B	50	150						"	- Red
4	20	25		BR202A	TC26	M-25-25	TA-25	PRS25-25	Cath. Bypass
5	.02	400		DT4S2	TP423	S-4-02	TC-12	484-02	Output Plate Bypass
6	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Phono Isolation

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MUSITRON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
7A	500KΩ			MR46	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 6A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MUSITRON PART No.	IRC PART No.	
8	240KΩ	½		BTS-220K	Red-Yl.-Yl. Volume Control Shunt
9	150Ω	5	32-01	AB-150	Output Cathode
10	2000Ω	10	34-03	AB-2000	Filter
11	250Ω	10	31-01	AB-250	Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MUSITRON PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
12	2050Ω	3.3Ω	170Ω	.5Ω	24-08	A-3876	T22S45		

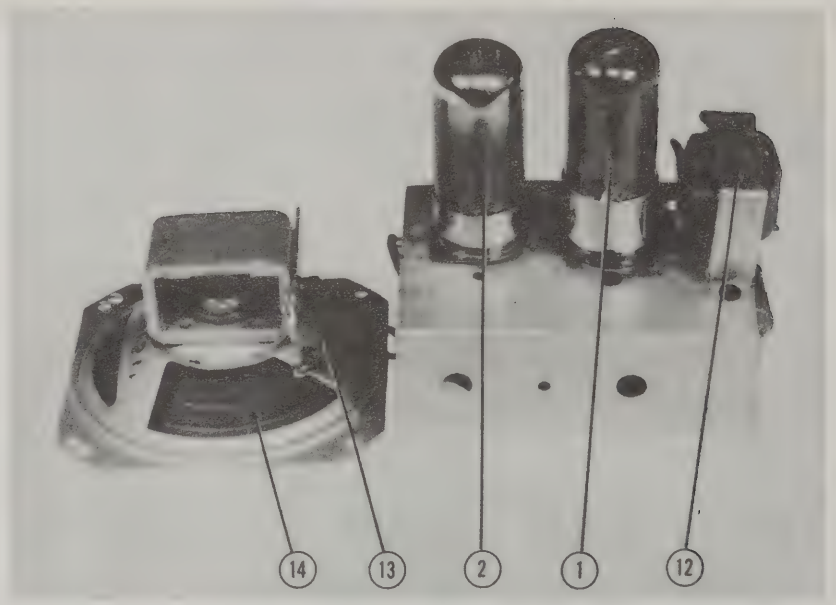
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MUSITRON PART No.	JENSEN PART No.		
13	FIELD	VC IMP.	95-07	ST-113		
	PM	3.3Ω		Mod. P4-X		
14	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			
	4"	1/2"				

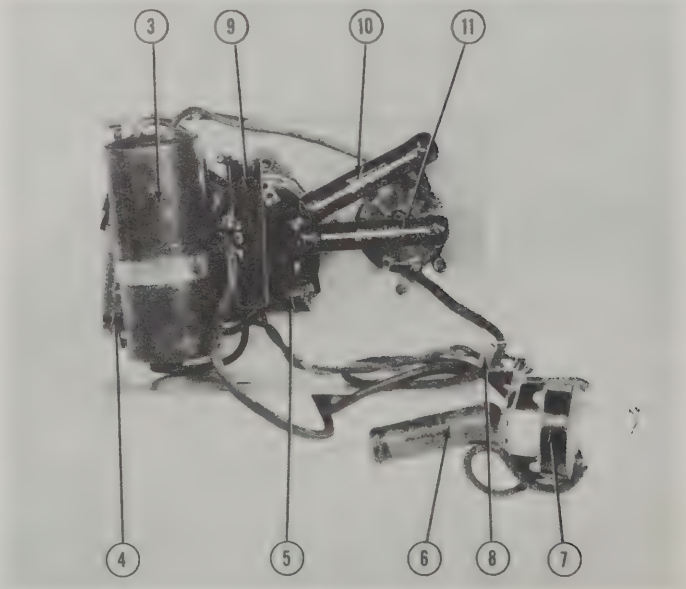
MISCELLANEOUS

ITEM No.	PART NAME	MUSITRON PART No.	NOTES
	Crystal Cartridge		ASTATIC Type L-72-A

CHASSIS—TOP VIEW

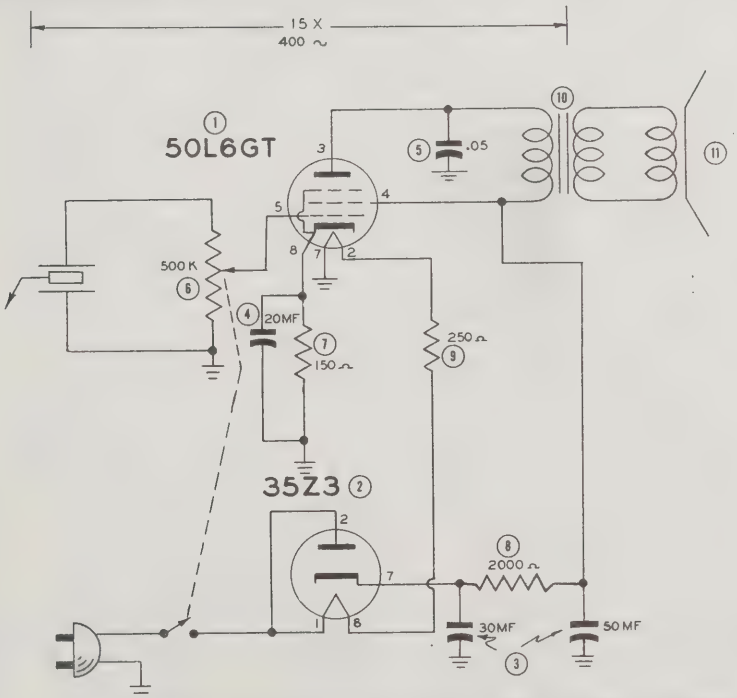


CHASSIS—BOTTOM VIEW



MUSITRON MODEL 202

TRADE NAME	Musitron, Model 202
MANUFACTURER	The Musitron Co., 223 W. Erie St., Chicago 10, Ill.
TYPE SET	AC Operated Phonograph with 2-Tube Amplifier & Speaker
TUBES (TWO)	Types, 50L6GT Power Output, 35Z3 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .200 Amp. @ 117 Volts AC



Pin No	50L6 GT Volt	Res
1	0V.	INF.
2	44V. AC	40 Ω
3	72V. DC	55 K Ω
4	78V. DC	55 K Ω
5	0V.	450 K Ω
6	0V.	0 Ω
7	0V.	0 Ω
8	5.2V. DC	140 Ω

Pin No	35Z5 Volt	Res
1	117V. AC	310 Ω
2	117V. AC	310 Ω
3	0V.	INF.
4	0V.	INF.
5	0V.	INF.
6	0V.	INF.
7	145V. DC	55 K Ω
8	82V. AC	290 Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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4711-27

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MUSITRON PART No.	STANDARD REPLACEMENT		
1	Power Output	50L6GT	50L6GT	7AC	
2	Rectifier	3Z3	3Z3	4G	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MUSITRON PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
3A	30	150		BRD351S	2N520	M-5030-150	TA-320	PRSA150-50-30	Filter - Green
B	50	150							" - Red
4	20	25		BR202A	TC26	M-25-25	TA-25	PRS25-25	Cath. Bypass
5	.05	400		DT4S5	TP426	S-4-05	TC-15	464-05	Output Plate Bypass

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MUSITRON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
6A	500KΩ	1		MR42	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 6A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MUSITRON PART No.	IRC PART No.	
7	150Ω	5		AB-150	Output Cathode
8	2000Ω	10		AB-2000	Filter
9	250Ω	10		AB-250	Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					INSTALLATION NOTES
	IMPEDANCE		DC RES.		MUSITRON PART No.	STANCOR PART No.	THORDAR'N PART No.			
	PRI.	SEC.	PRI.	SEC.						
10	2050Ω	3.3Ω	170Ω	.5Ω	24-08	A-3876	T23S45			

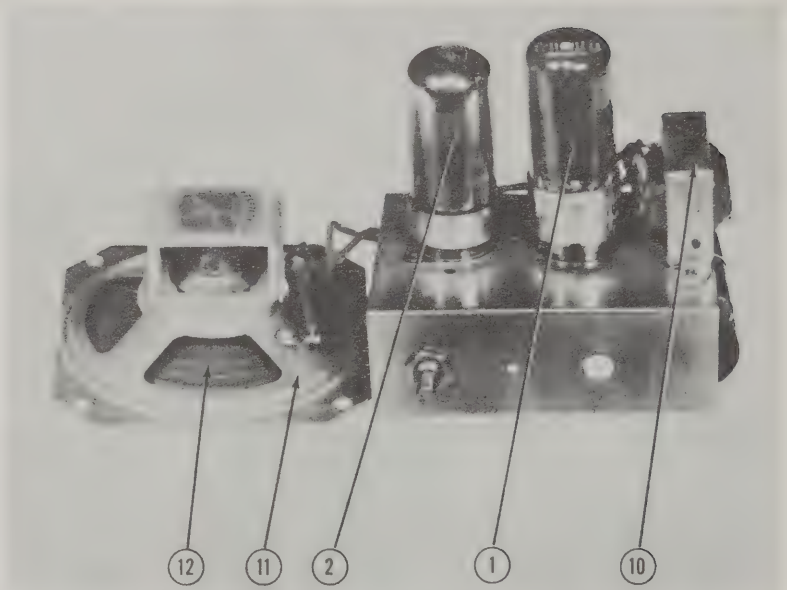
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MUSITRON PART No.	JENSEN PART No.		
11	FIELD	VC IMP.	95-07	ST-113		
	PM	3.2Ω		Mod. P4-X		
12	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			
	4"	1/2"				

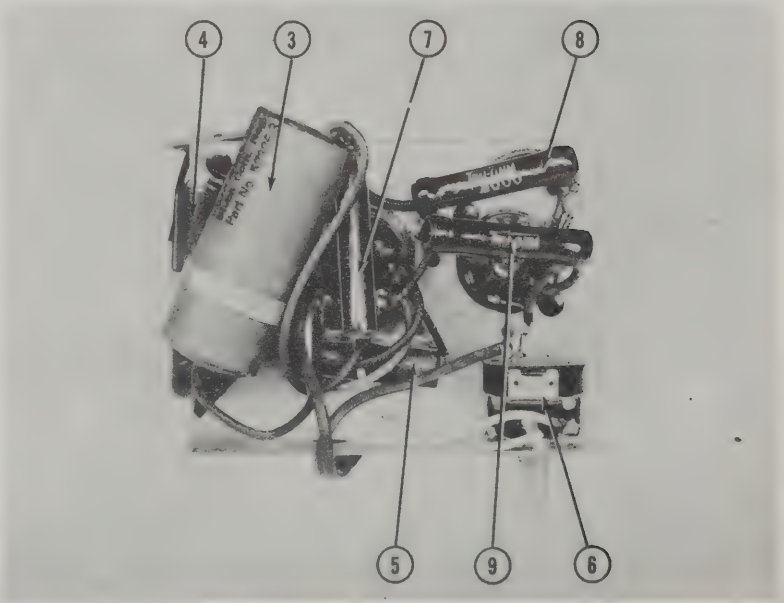
MISCELLANEOUS

ITEM No.	PART NAME	MUSITRON PART No.	NOTES
	Crystal Cartridge		ASTATIC Type L-72-A

CHASSIS—TOP VIEW

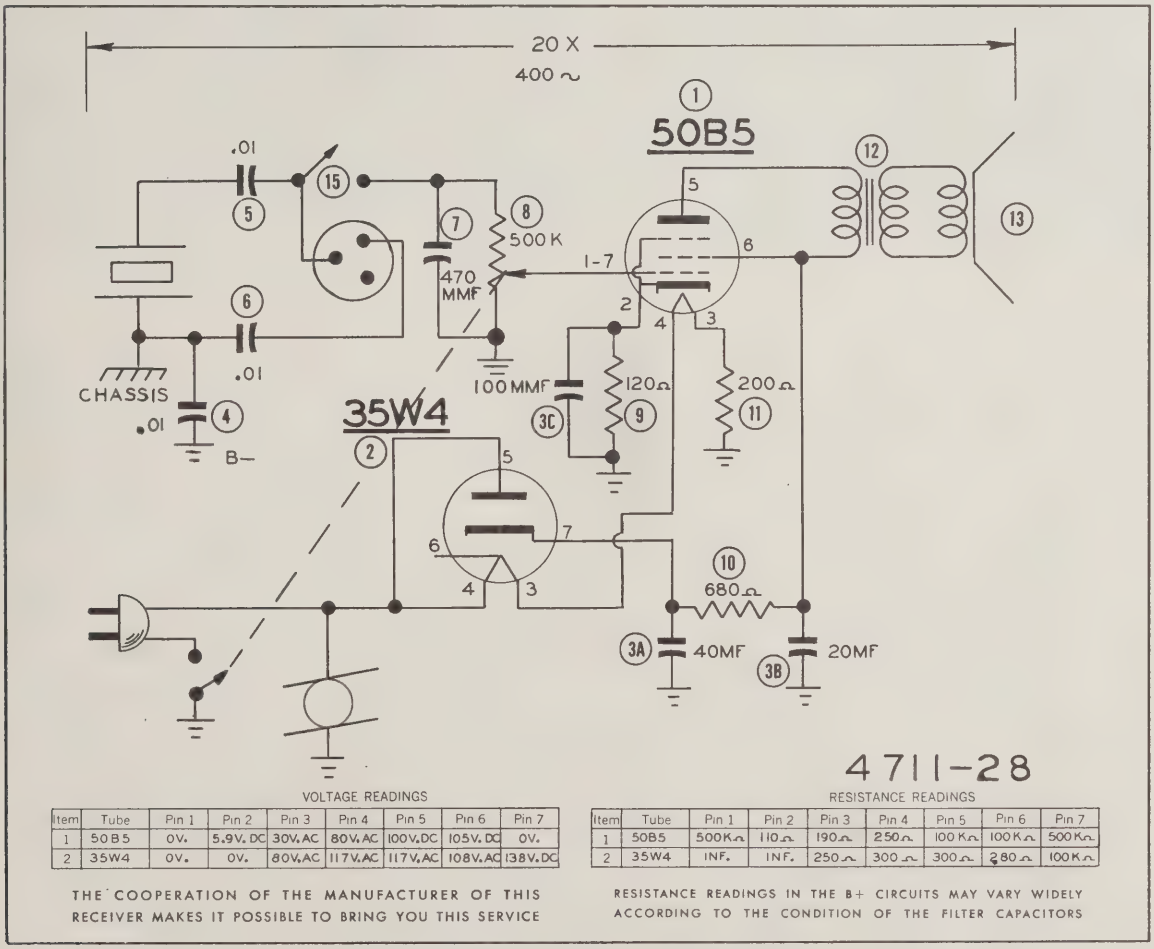


CHASSIS—BOTTOM VIEW



PACKARD-BELL MODEL 261

TRADE NAME	Packard-Bell, Model 261
MANUFACTURER	Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET	AC Operated Phonograph with 2 Tube Amplifier & Speaker
TUBES (TWO)	Types, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .230 Amp. @ 117 Volts AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	50B5	0V.	5.9V. DC	30V. AC	80V. AC	100V. DC	105V. DC	0V.
2	35W4	0V.	0V.	80V. AC	117V. AC	117V. AC	108V. AC	138V. DC

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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	50B5	500KΩ	110Ω	190Ω	250Ω	100KΩ	100KΩ	500KΩ
2	35W4	INF.	INF.	250Ω	300Ω	300Ω	280Ω	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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SET #21 DATE 7/47 FOLDER #4711-28

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Power Output	50B5	50B5	7BZ	
2	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
3A	40	150		UP6CJ62	FP304	DY-304		AF84D20A	■ Filter
B	20	150							▲ "
C	100	12							Cath. Bypass
4	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Line Isolation
5	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Phono Coupling
6	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Ext. Amp. Isolation
7	470	500		5W5T5	MC245	MO.5-447	1FM-35	1468-0005	Tone Compensation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
8A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 8A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
9	120Ω	½		BW-½-120	Br.-Red-Br. Output Cathode
10	680Ω	2		BT-2-680	Blue-Gray-Br. Filter
11	200Ω	10		AB-200	Series Filament

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
12	2750Ω	3.7Ω	200Ω	.9Ω	99411	A-3876	T22S45		

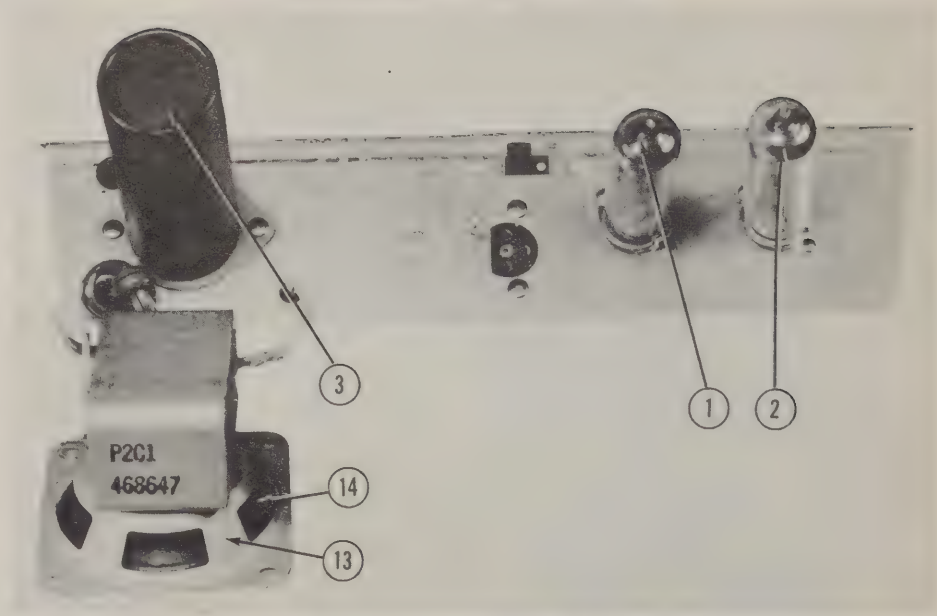
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.				
13	PM	3.7Ω				
	CONE DIA.	VC DIA.				
14	2-3/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE UNIT			

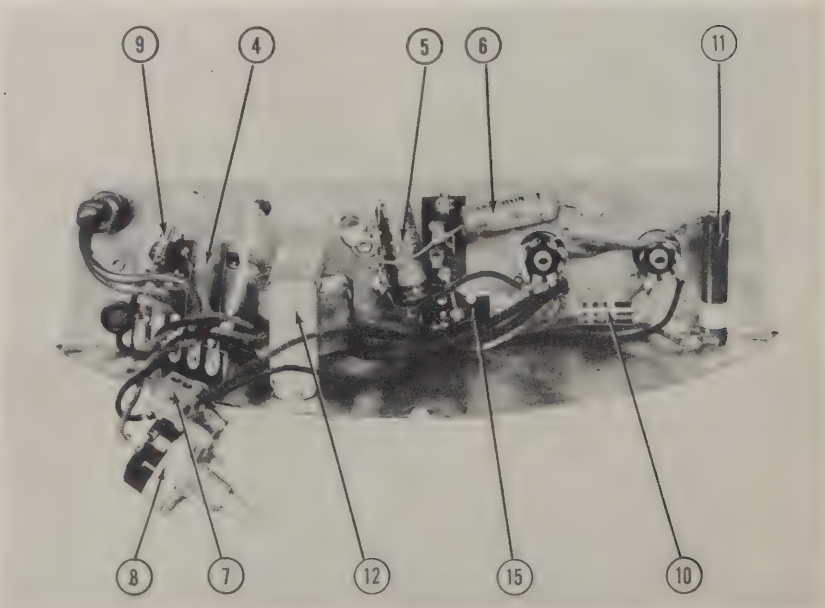
MISCELLANEOUS

ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
15	Switch		Ext. Amp.

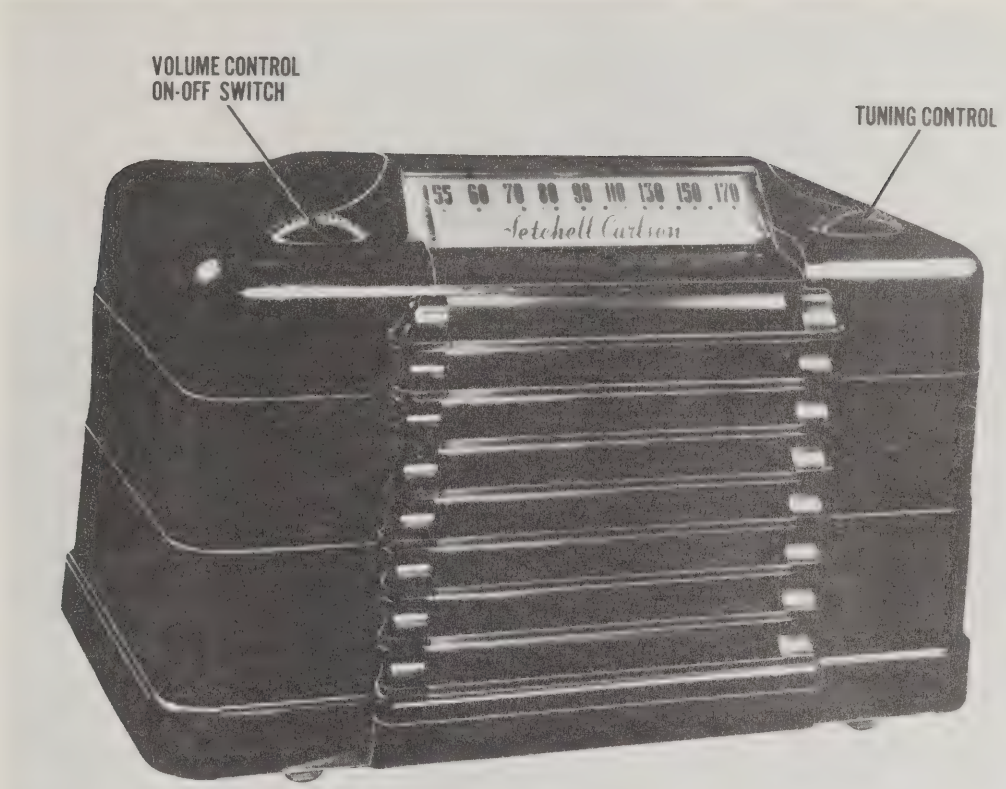
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



SETCHELL CARLSON
MODEL 427



SETCHELL CARLSON
MODEL 427

SETCHELL CARLSON MODEL 427

TRADE NAME	Setchell Carlson, Model 427
MANUFACTURER	Setchell Carlson, 2233 University Ave., St. Paul 4, Minn.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier,
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	535-1710KC RATING .220 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin #8 of 12SA7. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200 MMF.	High side to ext. ant. Low side to chassis.	1600KC	1600KC	"	A5	Adjust for maximum output.
3	200 MMF.	"	1400KC	Tune for maximum output.	"	A6,A7.	" " " "

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PARTS LIST AND DESCRIPTIONS

SETCHELL CARLSON MODEL 427

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SETCHELL CARLSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8WD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SETCHELL CARLSON PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150		UP6BJ34	FP214	DY-2x50-150	EL-25	AF1010D	■ Filter
B	50	150							▲ "
8	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
9	.02	400		DT4S2	TP423	S-4-02	TC-12	484-02	Output Plate Bypass
10	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
11	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	" "
12	.1	200		DT4P1	TP428	S-4-1	TC-1	484-1	Screen Bypass
13	.05	200		DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
14	.05	200		DT4S5	TP426	S-4-05	TC-15	484-05	" "
15	100	500		SW5T1	MC235	MO.5-31	1FM-31	1468-0001	Audio Plate Bypass
16	100	500		SW5T1	MC235	MO.5-31	1FM-31	1468-0001	Diode Filter
17	100	500		SW5T1	MC235	MO.5-31	1FM-31	1468-0001	Osc. Grid Capacitor

*Use ground lug on left hand terminal, and original mounting nut to provide groove for dial string.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SETCHELL CARLSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	1		MR48*	D13-133	M-60-Z*	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

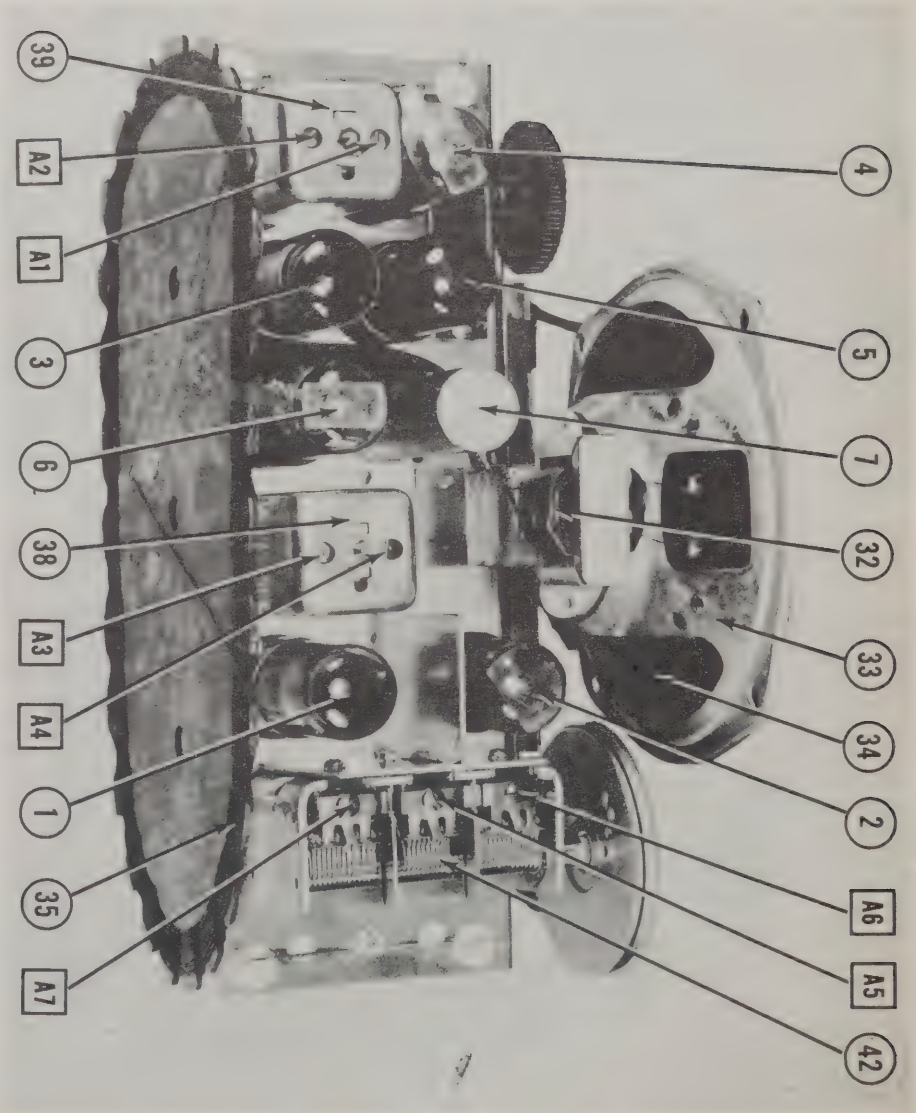
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SETCHELL CARLSON PART No.	IRC PART No.	IDENTIFICATION CODES
19	1 Meg.	1/3		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
20	15KΩ	1/2		BTS-15K	Br.-Grn.-Or. Screen Dropping
21	50KΩ	1/3		BTS-47K	Grn.-Blk.-Or. Oscillator Grid
22	2 Meg.	1/3		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
23	50KΩ	1/3		BTS-47K	Grn.-Blk.-Or. Series Volume Control
24	5 Meg.	1/3		BTS-4.7 Meg.	Grn.-Blk.-Grn. AF Grid
25	500KΩ	1/3		BTS-470K	Grn.-Blk.-Yl. AF Plate Load
26	100KΩ	1/3		BTS-100K	Br.-Blk.-Yl. Output Grid
27	1 Meg.	1/3		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
28	150Ω	1/2		BW-½-150	Br.-Gray-Br. Output Cathode
29	1200Ω	1/2		BTS-1200	Br.-Red-Red Filter
30	25Ω	1/2		BW-½-27	Red-Grn.-Blk. Rectifier Ballast
31	5KΩ	1/3		BTS-4700	Grn.-Blk.-Red Tone Compensation-See Note

Note-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SETCHELL CARLSON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
32	1700Ω	3.1Ω	100Ω	.8Ω		A-3405	T22A45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: SETCHELL CARLSON PART No.	JENSEN PART No.		INSTALLATION NOTES
33	FIELD PM	VC IMP. 3.1Ω	SP2	ST-108 † Mod. P6-X		† Fabricate new mounting bracket.
34	CONE DIA. 6"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

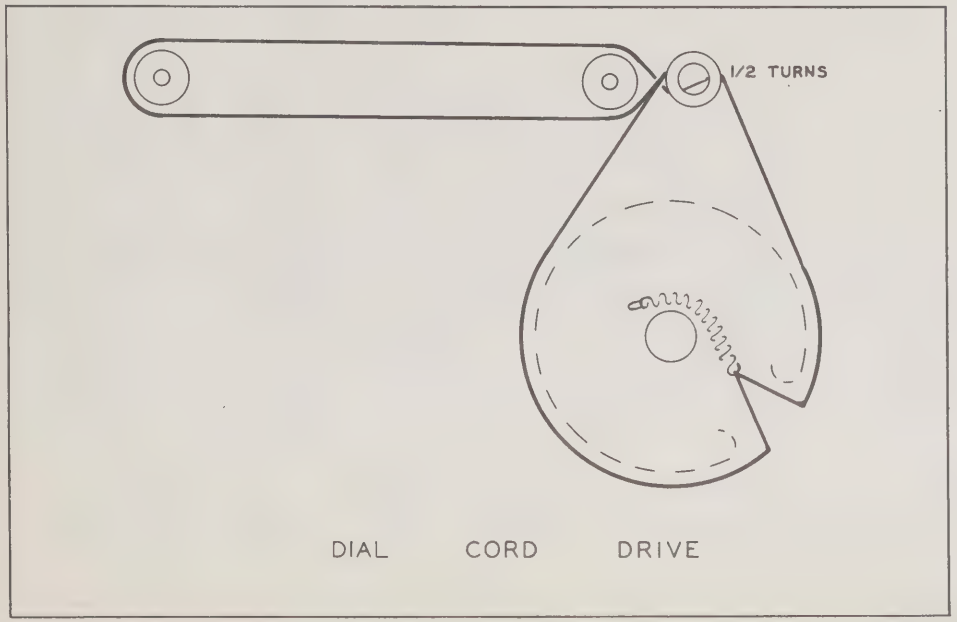
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SETCHELL CARLSON PART No.	MEISSNER PART No.
35	Loop Ant.		3Ω	427-19	
36	RF Coil	105Ω	5Ω		14-1027
37	Osc. Coil		2.5Ω		14-1040
38	Input IF	21Ω	21Ω	XP269	16-6658
39	Output IF	19Ω	20Ω	XP270	16-6660

DIAL LIGHT

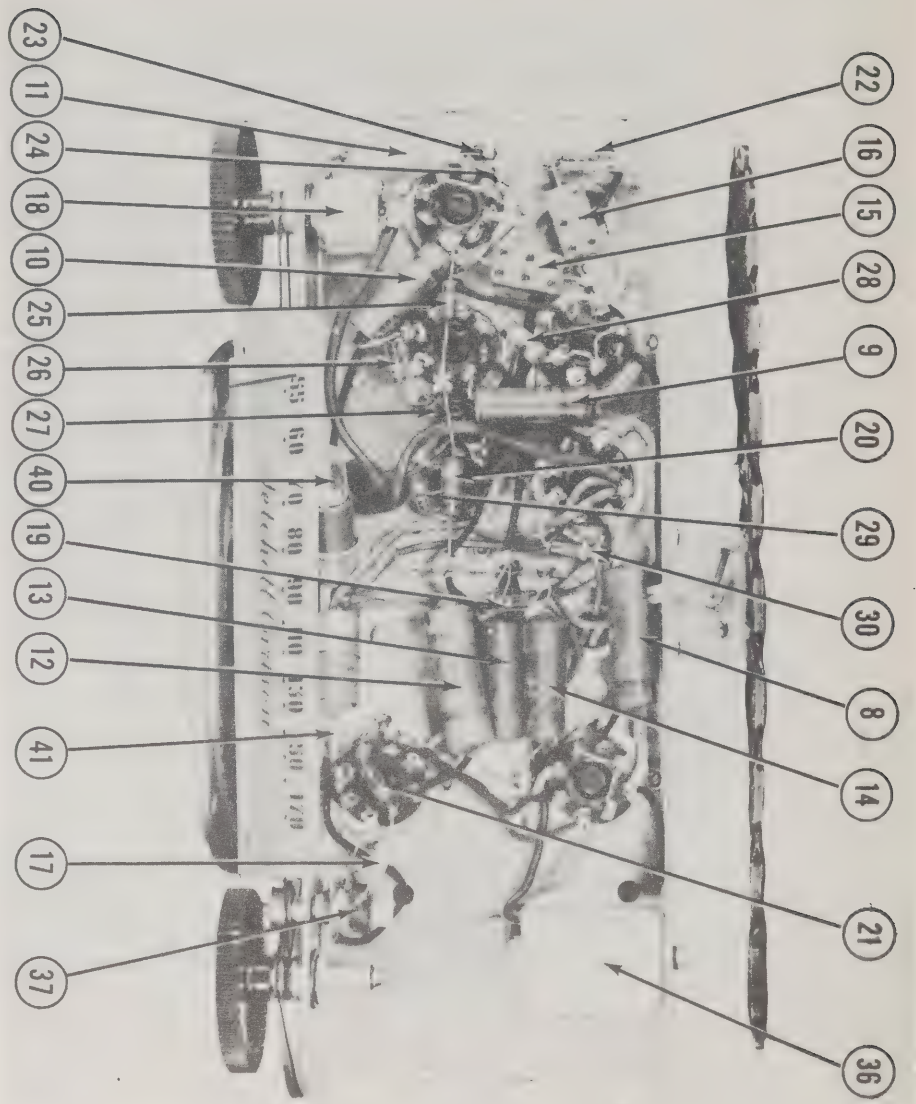
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: SETCHELL CARLSON PART No.		INSTALLATION NOTES
40	Bayonet	6-8	0.15	Brown			Type 47
41	"	"	"	"			" "

MISCELLANEOUS

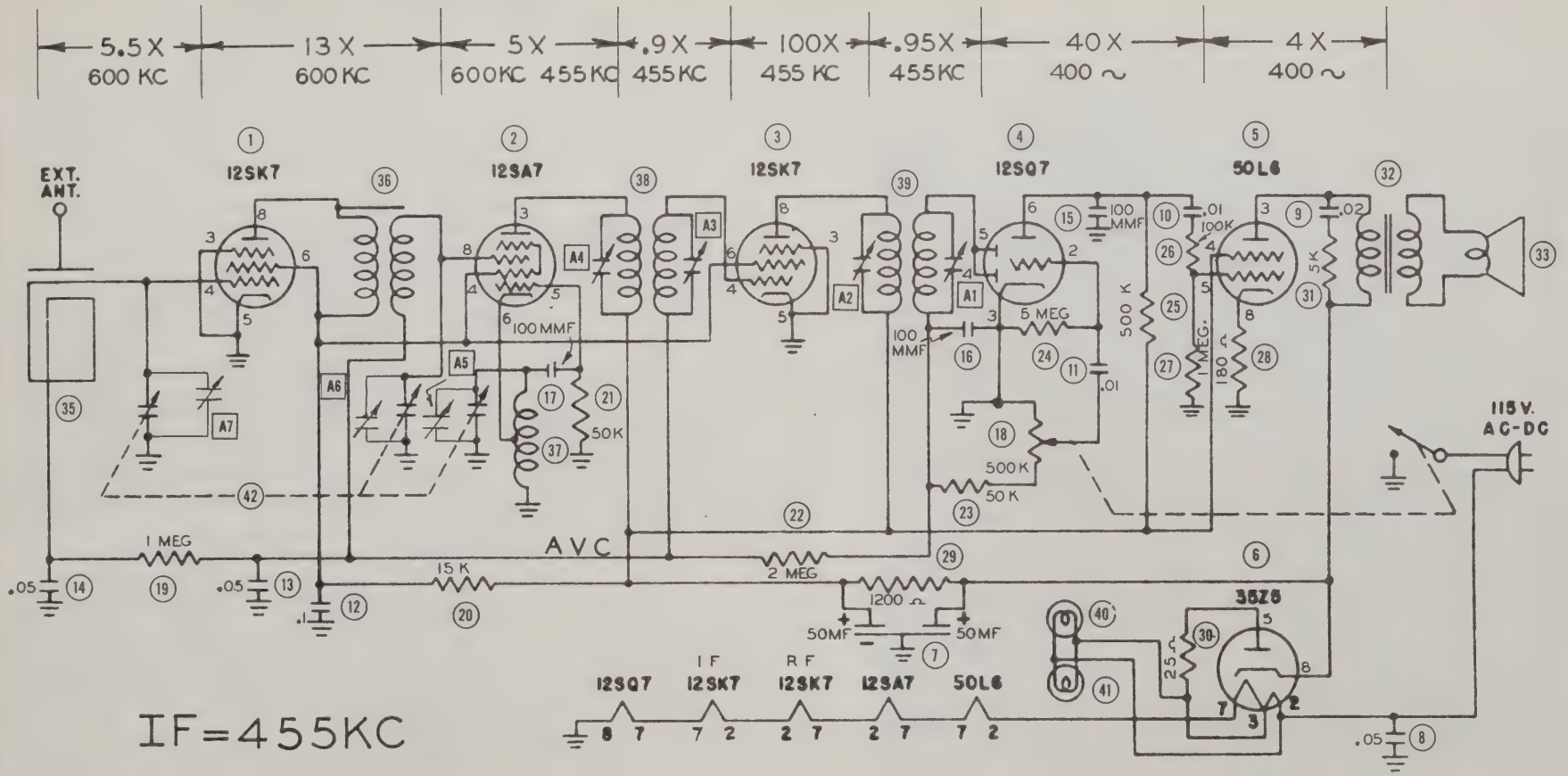
ITEM No.	PART NAME	SETCHELL CARLSON PART No.	NOTES
42	3 Gang Var. Cap		27-470 MMF, 27-470 MMF, 31-194 MMF



CHASSIS—BOTTOM VIEW



SETCHELL CARLSON MODEL 427



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	24V.AC	0V.	-.6V.DC	0V.	33V.DC	34V.AC	33V.DC
2	12SA7GT	0V.	34V.AC	115V.DC	33V.DC	-1.1V.DC	0V.	44V.AC	-.7V.DC
3	12SK7GT	0V.	24V.AC	0V.	-.7V.DC	0V.	33V.DC	12V.AC	115V.DC
4	12SQ7GT	0V.	-.7V.DC	0V.	-.1V.DC	-.1V.DC	65V.DC	12V.AC	0V.
5	50L6GT	0V.	92V.AC	123V.DC	113V.DC	0V.	0V.	44V.AC	7.8V.DC
6	35Z5GT	0V.	117V.AC	115V.AC	0V.	113V.AC	0V.	92V.AC	127V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0Ω	25Ω	0Ω	3 MEG.	0Ω	65KΩ	36Ω	65KΩ
2	12SA7GT	0Ω	36Ω	50KΩ	65KΩ	45KΩ	.4Ω	47Ω	2.8MEG
3	12SK7GT	0Ω	25Ω	0Ω	2.8MEG	0Ω	65KΩ	12Ω	50KΩ
4	12SQ7GT	0Ω	5 MEG.	0Ω	560KΩ	560KΩ	550KΩ	12Ω	0Ω
5	50L6GT	INF.	85Ω	50KΩ	50KΩ	1 MEG.	1.1MEG.	47Ω	180Ω
6	35Z5GT	INF.	122Ω	120Ω	INF.	140Ω	INF.	85Ω	50KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

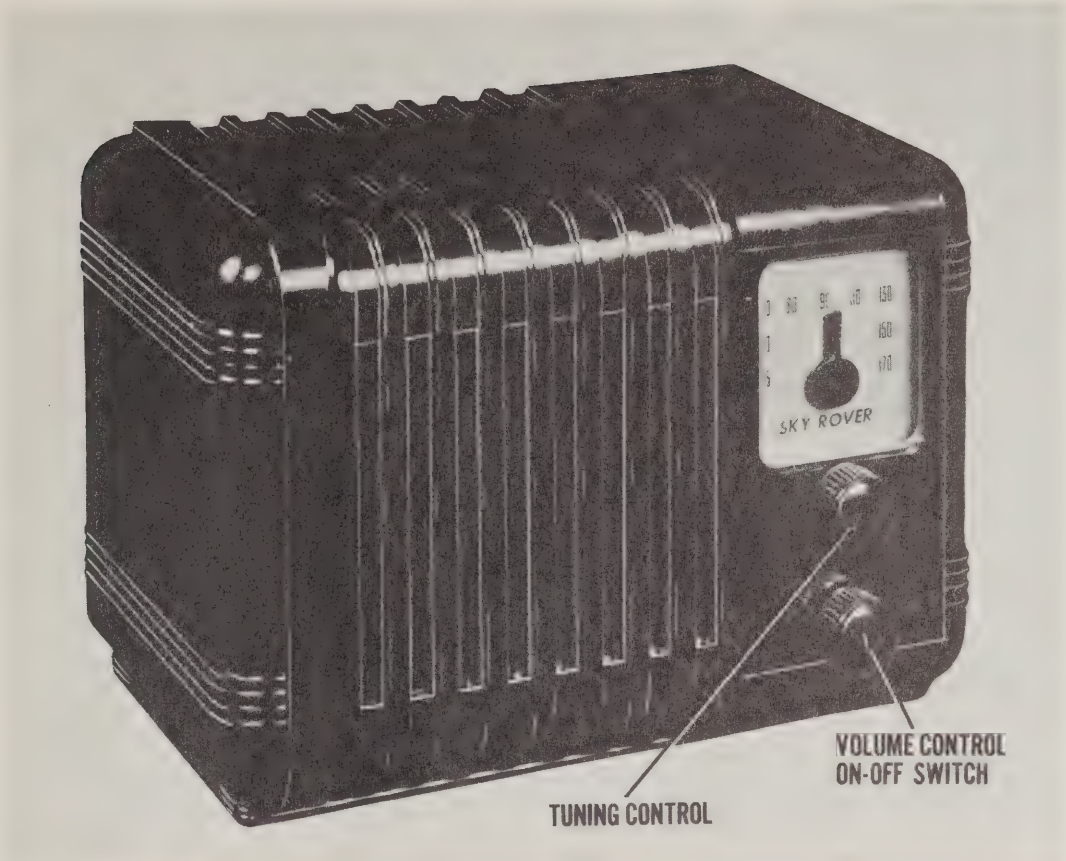
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4711-29

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SKY ROVER
MODEL N5-RD295 (CH. 5A7)



SKY ROVER
MODEL N5-RD295 (CH. 5A7)

SKY ROVER MODEL N5-RD295

TRADE NAME	Sky Rover, Model N5-RD295 (Chassis 5A7)
SUPPLIER	Butler Bros., Randolph & Canal Sts., Chicago 80, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1725KC
RATING	.265 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not connect a capacitor in series with low side of signal generator and chassis. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2,	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1500KC	1500KC	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A4	"

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PARTS LIST AND DESCRIPTIONS

SKY ROVER
MODEL N5-RD295

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SKY ROVER PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SKY ROVER PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	50	150	CLP-10007	BRD3515	2N520	M-5030-150	TA-530	PRSA150-50-30	Filter - Red
B	30	150							" - Blue
7	.05	400	CPP-14503	DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
8	.02	400	CPP-14203	DT4S2	TP423	S-4-02	TC-12	484-02	Output Plate Bypass
9	.01	200	CPP-12103	DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
10	.01	200	CPP-12103	DT4S1	TP421	S-4-01	TC-11	484-01	" "
11	.02	200	CPP-14203	DT4S2	TP423	S-4-02	TC-12	484-02	AVC Filter
12	.01	150	CPP-11103	DT4S1	TP421	S-4-01	TC-11	484-01	Conv. Cath. Bypass
13	250	500	CMP-15251	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Tone Compensation
14	250	500	CMP-15251	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	IF Coupling
15	50	500	CMP-15500	5W5Q5	MC225	MO.5-45	1FM-45	1468-00005	Osc. Grid Capacitor

CONTROLS

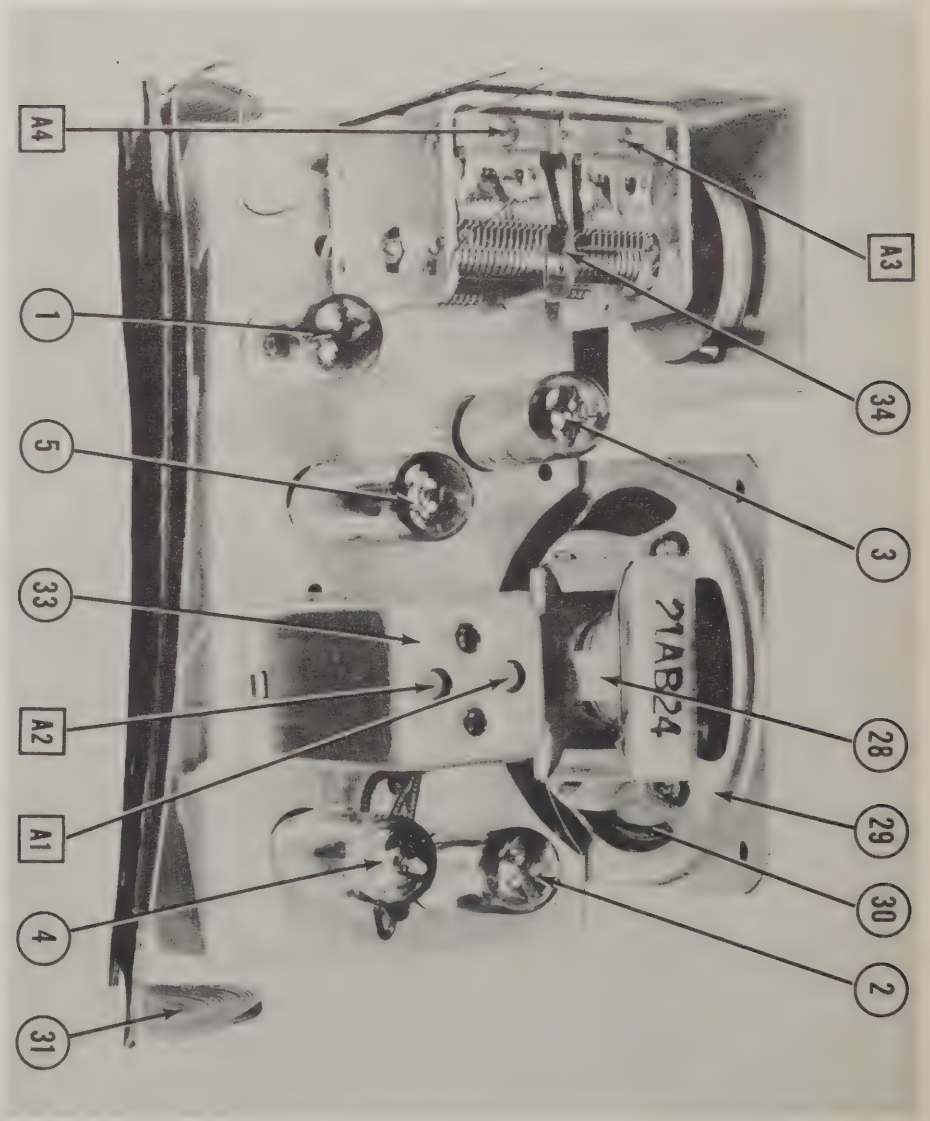
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SKY ROVER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16	500KΩ	1					Volume Control & Sw. Later production
16	1 Meg.	1	VCP-12105				Volume Control & Sw. Early Production

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SKY ROVER PART No.	IRC PART No.	
17	18KΩ	½		BTS-18K	Br.-Gray-Or. Oscillator Grid-See Note 1
18	150Ω	½	RCP-31500	BW-½-150	Br.-Grn.-Br. Converter Cathode
19	2.2 Meg.	½	RCP-32204	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	6800Ω	½	RCP-36801	BTS-6800	Blue-Gray-Red IF Plate Load
21	100KΩ	½	RCP-31003	BTS-100K	Br.-Blk.-Yl. Diode Load
22	10 Meg.	½	RCP-31005	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
23	220KΩ	½	RCP-32203	BTS-220K	Red-Red-Yl. AF Plate Load
24	470KΩ	½	RCP-34703	BTS-470K	Yl.-Vi.-Yl. Output Grid
25	150Ω	½	RCP-31500	BW-½-150	Br.-Grn.-Br. Output Cathode
26	1000Ω	1	RCP-41001	BTA-1000	Br.-Blk.-Red Filter
27	18Ω	½		BW-½-18	Br.-Gray-Blk. Rectifier Ballast-See Note 2

Note 1 - Some models use 10KΩ in this application. IRC replacement BTS-10K.
Note 2 - Some models use 22Ω in this application. IRC replacement BW-½-22.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SKY ROVER PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
28	1900Ω	3.2Ω	188Ω	.9Ω	TO-10000	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SKY ROVER PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
29	PM	3.2Ω	SRP-10005			
	CONE DIA.	VC DIA.				
30	3-3/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

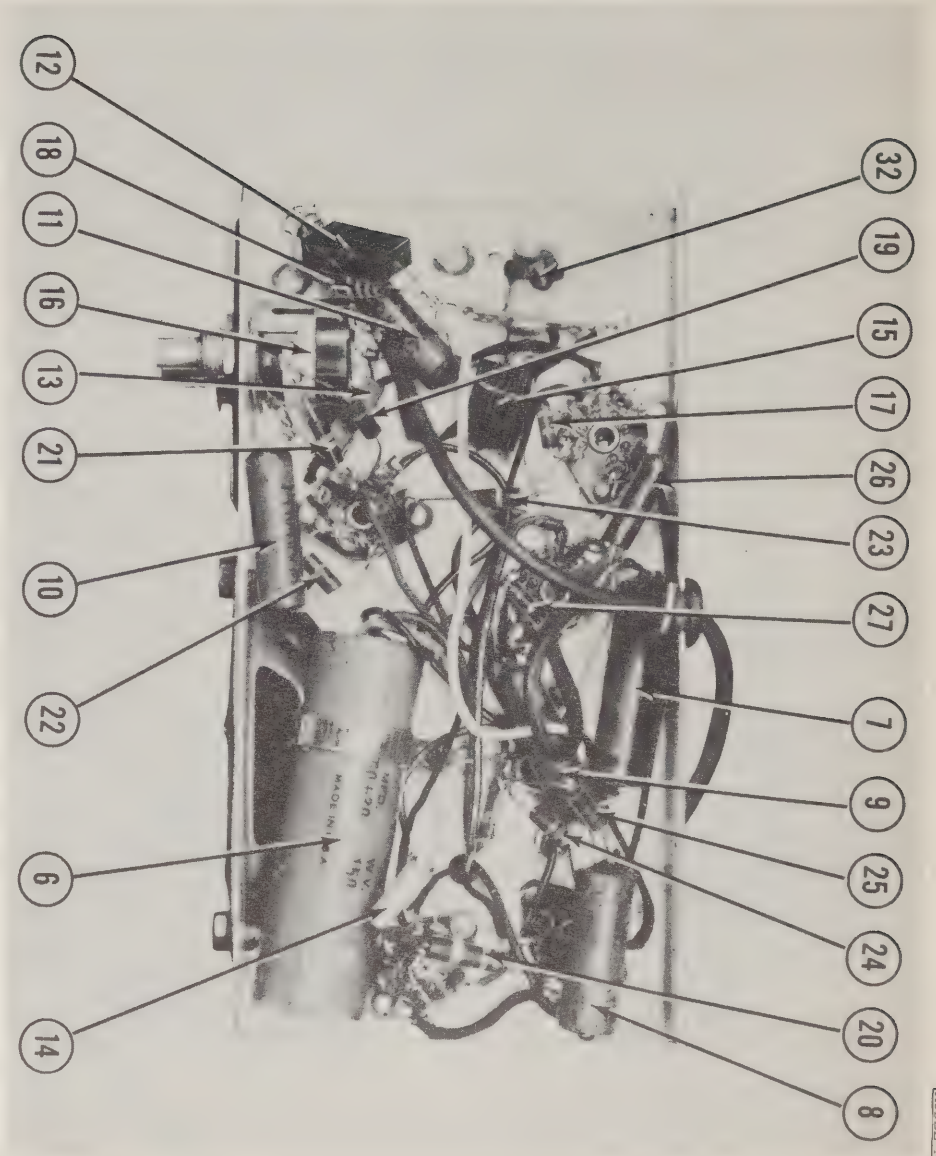
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SKY ROVER PART No.	MEISSNER PART No.	
31	Loop Ant.		1.5Ω	ALP-10003		
32	Osc. Coil		5.5Ω	TRCP-10000-D	14-1040	
33	Input IF	24Ω	24Ω	TSP-10002		

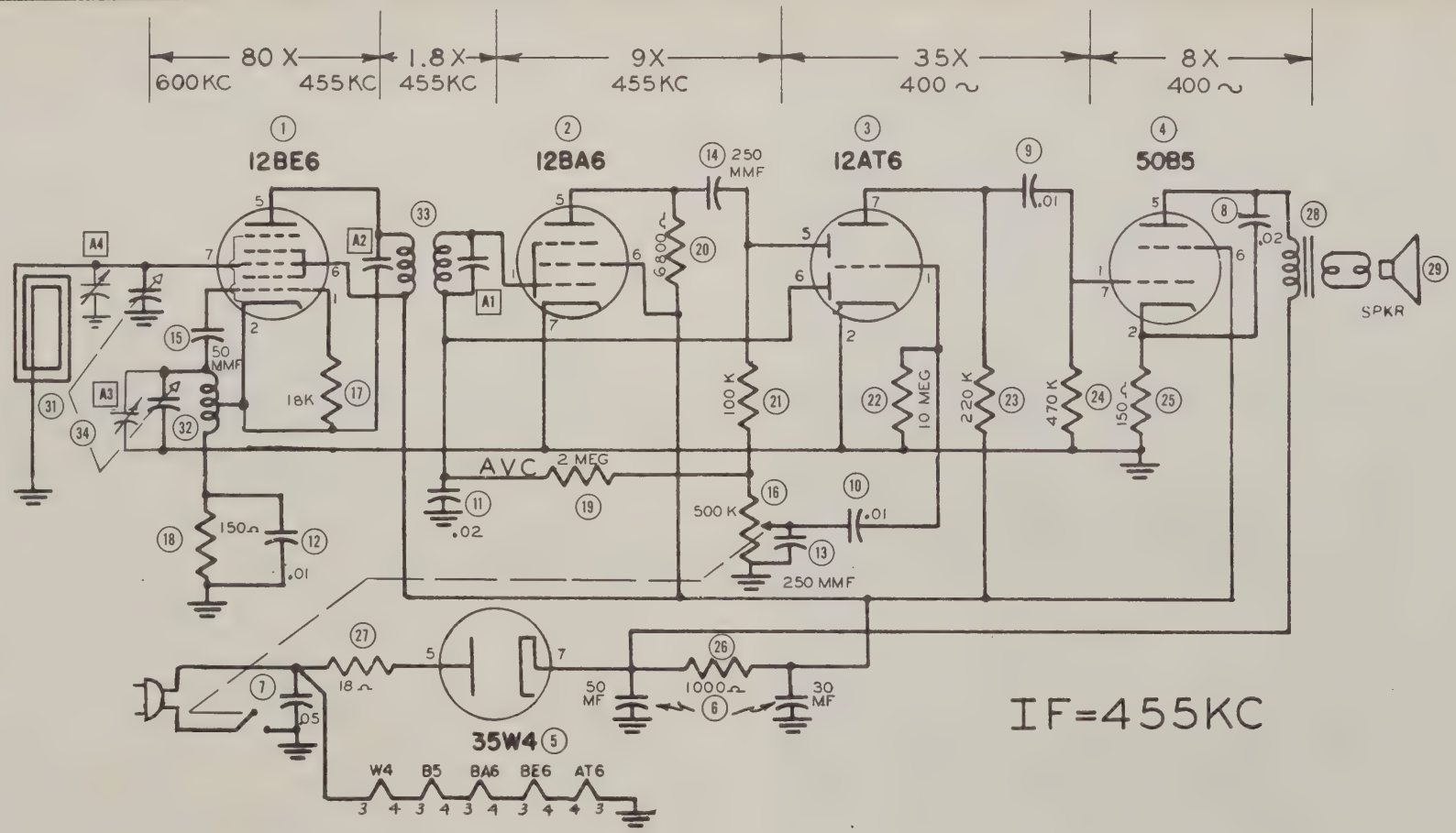
MISCELLANEOUS

ITEM No.	PART NAME	SKY ROVER PART No.	NOTES
34	2 Gang Var. Cap.	CV-10008	28-467 MMF, 33-205 MMF

CHASSIS—BOTTOM VIEW



SKY ROVER MODEL NS-RD295



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-3.1V.DC	1.7V.DC	24V.AC	12V.AC	97V.DC	97V.DC	0V.
2	12BA6	-.6V.DC	0V.	36V.AC	24V.AC	46V.DC	97V.DC	0V.
3	12AT6	-.7V.DC	0V.	0V.	12V.AC	-.6V.DC	-.7V.DC	53V.DC
4	50B5	0V.	6V.DC	84V.AC	36V.AC	123V.DC	97V.DC	0V.
5	35W4	117V.AC	117V.AC	117V.AC	84V.AC	116V.AC	91V.AC	128V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	15 KΩ	150Ω	22Ω	12Ω	80KΩ	80 KΩ	1Ω
2	12BA6	2.3MEG.	0Ω	32Ω	22Ω	87KΩ	80KΩ	0Ω
3	12AT6	10MEG.	0Ω	0Ω	12Ω	540 KΩ	2.3MEG	300KΩ
4	50B5	430 KΩ	130Ω	76Ω	32Ω	80 KΩ	80 KΩ	430KΩ
5	35W4	103Ω	103Ω	103Ω	76Ω	125Ω	82Ω	80KΩ

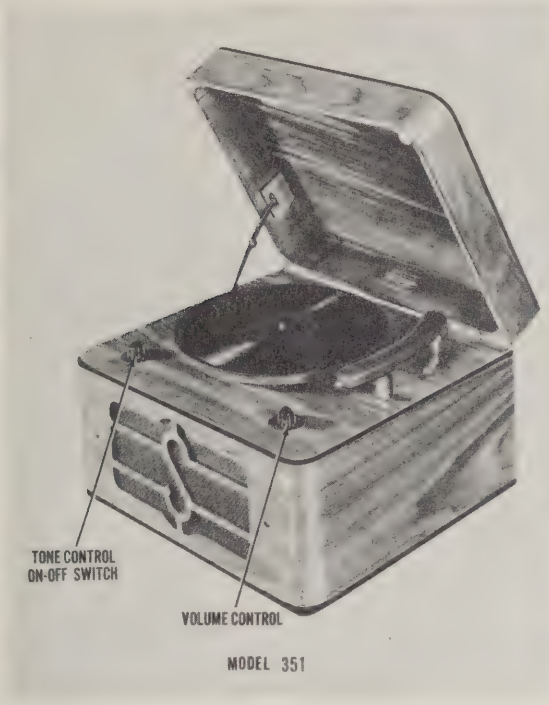
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4711-30

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



MODEL 351

MODEL 350

STEELMAN
MODEL 350

STEELMAN
MODEL 350

STEELMAN MODEL 350

TRADE NAME	Steelman, Model 350, (Early & Late productions), 351
MANUFACTURER	Steelman Radio Corp., 742 Tremont Ave., Bronx 57, N.Y.
TYPE SET	AC Operated Phonograph with 3 Tube Amplifier & Speaker
TUBES (THREE)	Types, 6SL7GT or 7F7 AF Amp., 6V6GT or 7C5 Power Output, 6X5GT or 7Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .360 @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SL7GT	0V.	275V.DC	2.9 V.DC	0V.	165V.DC	165V.DC	6.4V.AC	0V.
2	6V6GT	0V.	0V.	315V.DC	330V.DC	0V.	275V.DC	6.4V.AC	17.5V.DC
3	6X5GT	0V.	0V.	310V.AC	0V.	310V.AC	0V.	6.4V.AC	350V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SL7GT	750KΩ	160KΩ	2KΩ	490KΩ	310KΩ	2KΩ	.1Ω	0Ω
2	6V6GT	INF.	0Ω	110KΩ	110KΩ	850KΩ	160KΩ	.1Ω	280Ω
3	6X5GT	INF.	0Ω	320Ω	INF.	340Ω	INF.	.1Ω	110KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

STEELMAN MODEL 350

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		STEELMAN PART No.	STANDARD REPLACEMENT		
1A	AF Amp.		6SL7GT	8BD	
B	" "		7F7	8AC	
2A	Power Output		6V6GT	7AC	
B	" "		7C5	6AA	
3A	Rectifier		6X5GT	6S	
B	"		7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	STEELMAN PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
4A	30	300		UP6BJ37	FP331	DY-313	EL-323	AF64K4A	■ Filter
B	25	300							▲ "
C	20	25		BR202A					Cath. Bypass
5	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	Line Filter
6	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	" "
7	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
8	.0015	600		DT6D2	TP405	S-6-002	TC-22	684-002	" "
9	80	500							Tone Compensation*

*May be 150 MMFD in some models.

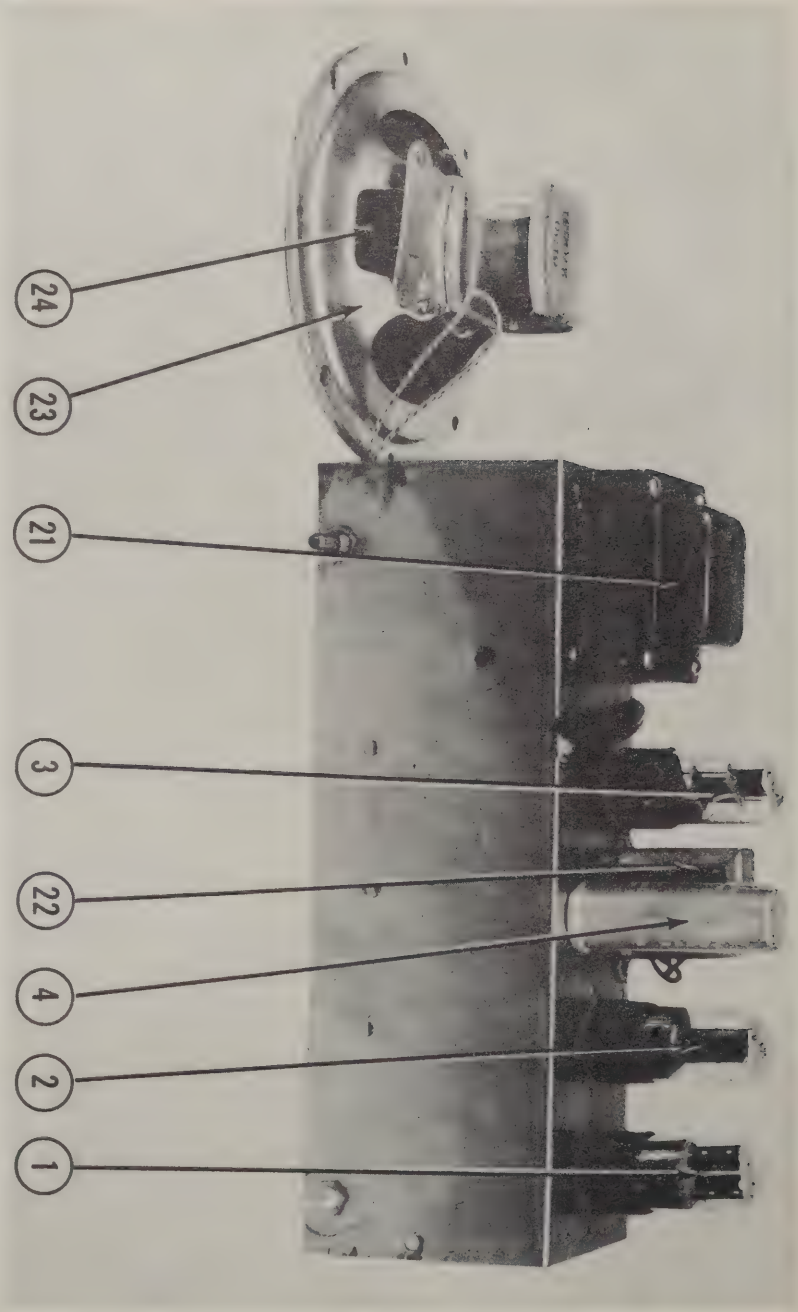
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	STEELMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
10A	1 Meg.	1		MR53	D13-137	M-63-Z	Volume Control-Used in later prod.
B	Shaft			Not Req.	A	Not Req.	Attach to 25A per instructions
10A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control-Used in early prod.
B	Shaft			Not Req.	A	Not Req.	Attach to 25A per instructions
11A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control-Used in later prod.
B	Shaft			Not Req.	A	Not Req.	Attach to 26A per instructions
C	Switch			M26	41	SW-A	" " " " "
11A	250KΩ	1		MR44	D13-130	M-64-Z	Tone Control-Used in early prod.
B	Shaft	1		Not Req.	A	Not Req.	Attach to 26A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	STEELMAN PART No.	IRC PART No.	
12	6.8 Meg.	½		BTS-6.8 Meg.	Blue-Gray-Grn. Tone Compensation
13	820KΩ	½		BTS-820K	Gray-Red-Yl. AF Grid
14	2200Ω	½		BTS-2200	Red-Red-Red AF Cathode
15	2200Ω	½		BTS-2200	Red-Red-Red AF Cathode
16	51KΩ	1		BTA-47K	Grn.-Br.-Or. AF Plate Load
17	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
18	820KΩ	½		BTS-820K	Gray-Red-Yl. Feedback
19	300Ω	1		BW-1-330	Or.-Blk.-Br. Output Cathode

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000∿)	STEELMAN PART NO.	STANCOR PART NO.	THORDARSON PART NO.	
20	.056A	250Ω	3 Henries		C-1709 §	T20C53 §	§Drill one new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	STEELMAN PART No.	STANCOR PART No.	THORDARSON PART No.	
21	117V AC @ .36A	620V CT @ .056A	6.4V AC @ 1.2A			P-6119	T22R02	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			STEELMAN PART No.	JENSEN PART No.		
23	FIELD	VC IMP.	SPEAKER HAS	SPECIAL CHARACTERISTICS - ORDER FROM MANUFACTURER		
	PM	3.2Ω				
24	CONE DIA.	VC DIA.				
	6"	1/2"				

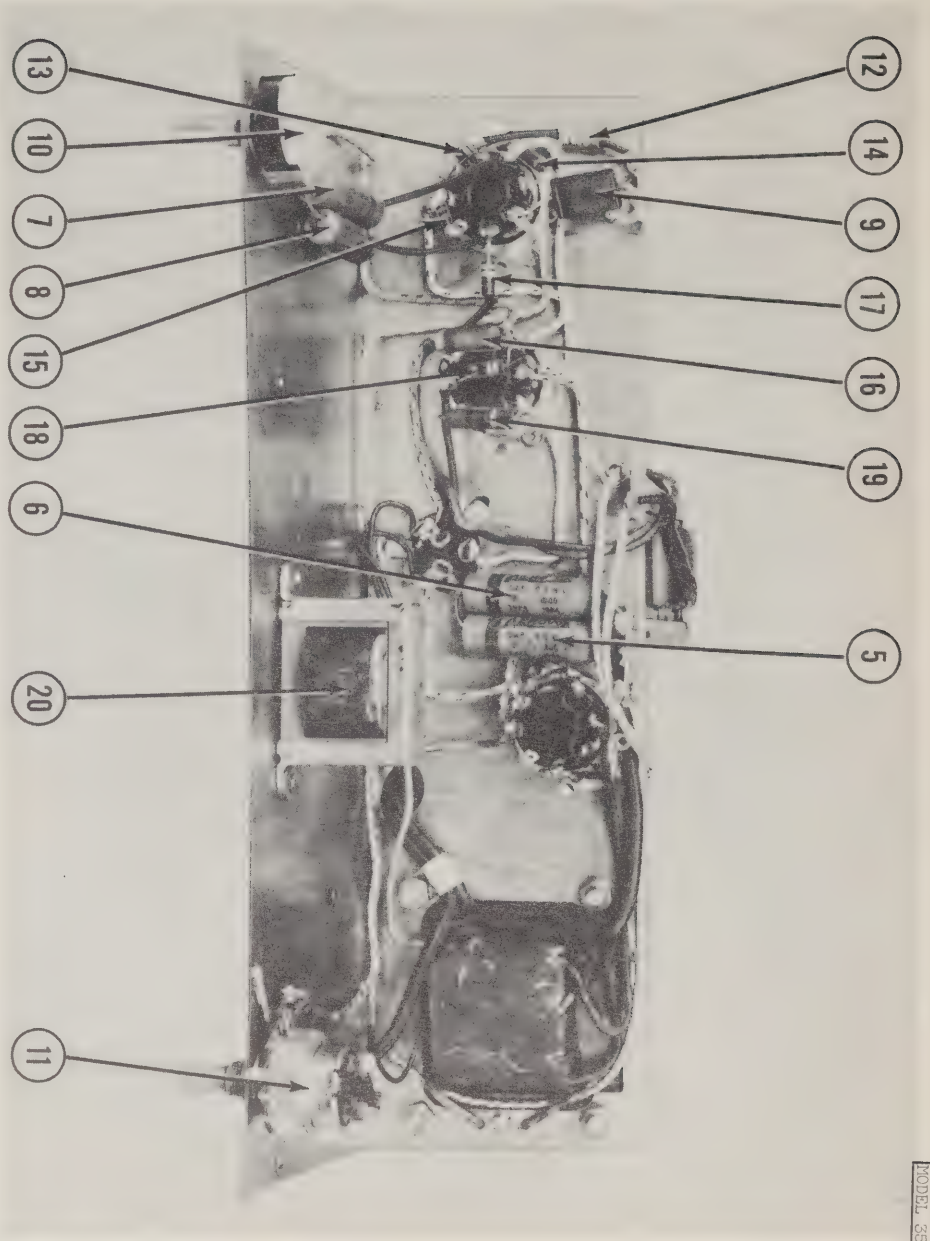
MISCELLANEOUS

ITEM No.	PART NAME	STEELMAN PART No.	NOTES
	Phono Crystal		ASTATIC Type L-72A

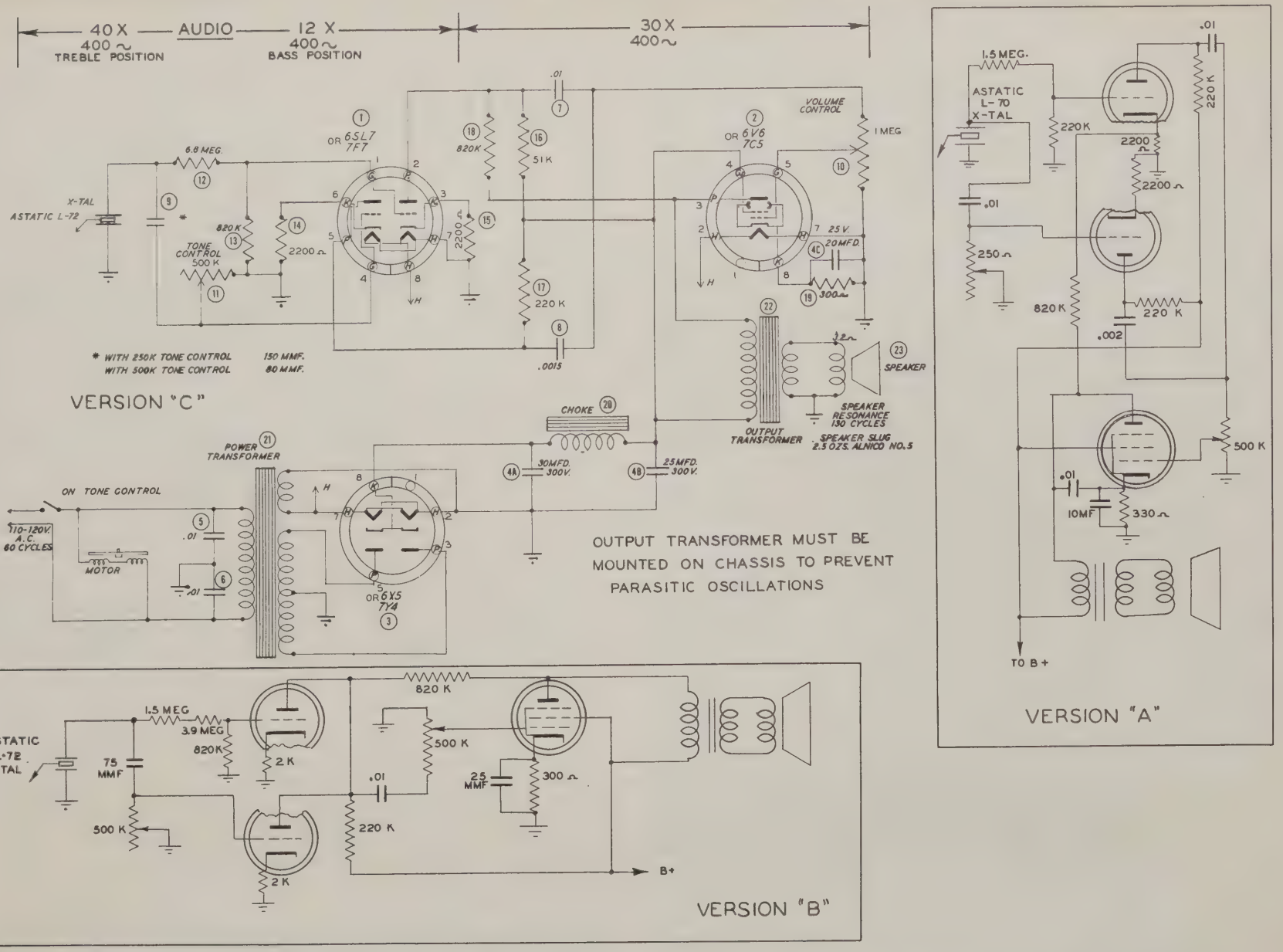
DISASSEMBLY INSTRUCTIONS

1. Loosen set screws and remove two control knobs.
2. Remove two wood screws holding cover board over back of speaker. Remove cover board.
3. Remove six wood screws holding phono mounting board in cabinet. Lift mounting board from cabinet.
4. Remove two hex nuts holding speaker mounting board in cabinet. Remove speaker and board from cabinet.
5. Unsolder phono-motor leads from chassis.
6. Unsolder phono-pickup leads from chassis.
7. Remove two hex nuts holding chassis to mounting board.

CHASSIS—BOTTOM VIEW



STEELMAN MODEL 350



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

STUDEBAKER (PHILCO)
MODELS S-4624, S-4625

STUDEBAKER (PHILCO)
MODELS S-4624, S-4625

STUDEBAKER MODEL S-4625

TRADE NAME	Studebaker (Philco), Models S-4624, S-4625 "Liberator"
SUPPLIER	Studebaker Corp., South Bend, Indiana
TYPE SET	Battery Operated Custom Built Automotive Superheterodyne with Pushbutton Tuning
TUBES (SIX)	Types, 7A7 RF Amp., 7B8 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7A5 Power Output, 7Y4 Rectifier.
POWER SUPPLY	6 Volt Storage Battery
TUNING RANGE—BROADCAST	540-1600KC RATING 5.7 Amp. @ 6.3 Volts DC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
After receiver is installed in car adjust A4 for maximum volume on a weak station near 1400KC.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD	High side to ant. receptacle. Low side to chassis.	455KC	Tuning slugs in completely	Across voice coil	A1,A2, A3,	Short Pin 4 of 7B8 to chassis. Adjust in order given and repeat for maximum output. Remove short on Pin 4 of 7B8. Tighten A6 firmly. Loosen ½ turn.
2	Connect a 30MMFD cap. from ant. receptacle to chassis.	High side through 20 MMFD. to ant. receptacle. Low side to chassis.	1400KC	1400KC	"	A4	Adjust for maximum output.
3	"	"	580KC	Tune for maximum output.	"	A5	Rock tuning cap. and adjust for maximum output.
4	"	"	550KC	"	"	A6	Leave receiver setting unchanged. Tune signal generator to 1460 and adjust A6 for minimum output.
5	"	"	1400KC	"	"	A4	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

STUDEBAKER (PHILCO)
MODELS S-4624, S-4625

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO STUDEBAKER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7A7	7A7	8V	
2	Converter	7B8	7B8	9X	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Power Output	7A5	7A5	6AA	
6	Rectifier	7Y4	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO STUDEBAKER PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	350	61-0150	UP9DJ50	FP424	DY-404	EL-415		● Filter
B	10	350							■ "
C	5	300							▲ "
D	10	25							Cath. Bypass
8	.5	200	61-0137	DT4P5	TP431	S-4-5	TC-5	484-.5	Hash Filter
9	.5	100	61-0106	DT4P5	TP431	S-4-5	TC-5	484-.5	" "
10	.5	200	61-0137	DT4P5	TP431	S-4-5	TC-5	484-.5	" "
11	.007	1500	61-0127	MD16D7	OW345	TM-16-007	TR-27	1684-007	Buffer
12	.03	600	61-0119	DT6S3	TP413	S-6-03	TC-13	684-03	Output Plate Bypass
13	.01	600	61-0120	DT6S1	TP410	S-6-01	TC-11	684-01	Audio Coupling
14	.004	1000	61-0129	DT6D4	TP407	S-6-004	TC-24	684-004	" "
15	.05	200	61-0111	DT4S5	TP426	S-4-05	TC-15	484-05	IF Cath. Bypass
16	.05	200	61-0111	DT4S5	TP426	S-4-05	TC-15	484-05	Screen Bypass
17	.05	200	61-0101	DT4S5	TP426	S-4-05	TC-15	484-05	RF Cath. Bypass
18	.1	200	61-0104	DT4P1	TP428	S-4-1	TC-1	484-.1	RF Bypass Pwr. Supp.
19	.05	200	61-0111	DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
20	250	500	6010255007	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Hash Filter
21	250	500	6010255007	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Osc. Anode Coupling
22	437	500	30-1220-15						Fixed Trimmer
23	250	500	6010255007	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Osc. Grid Capacitor
24	100	500	6010105007	5W5T1	MC235	MO.5-31	1FM-31	1468-0001	RF Coupling
25	250	500	6010255007	5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Ext. Ant. Coupling

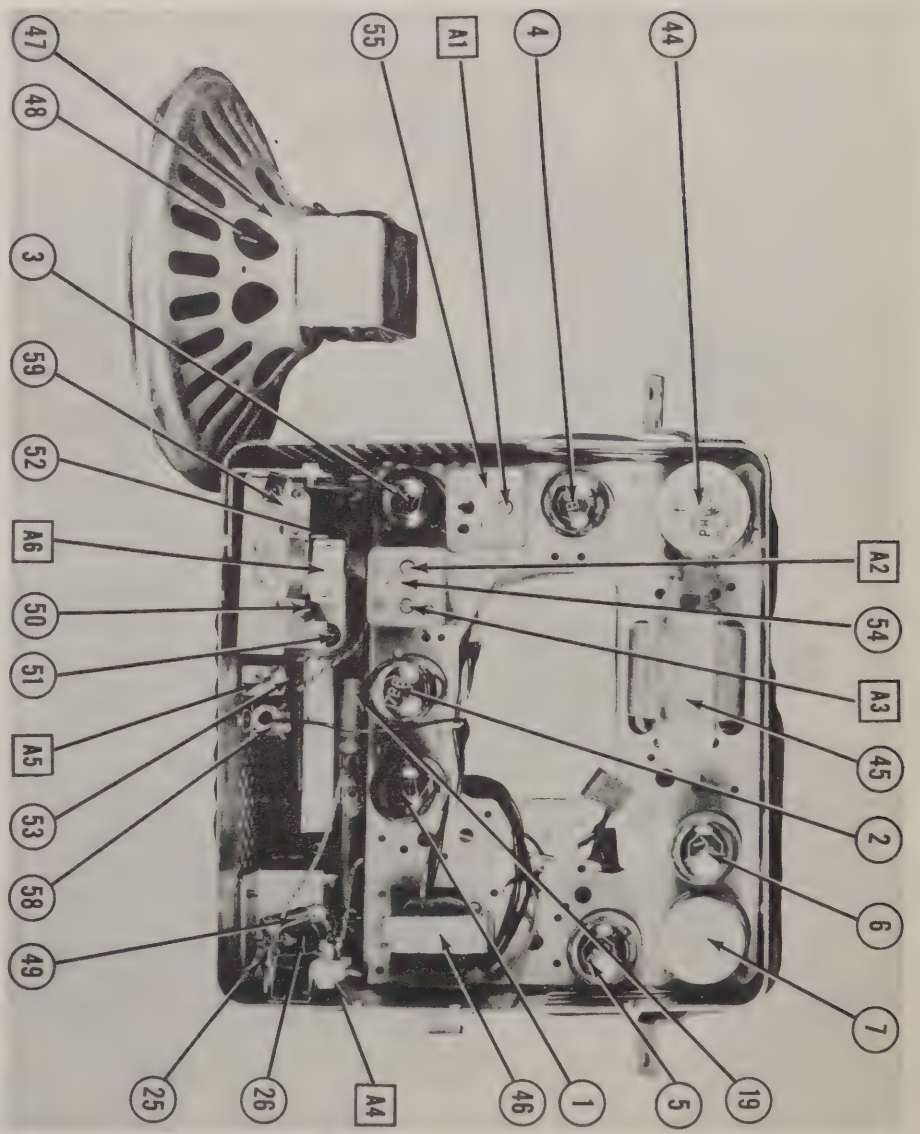
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO STUDEBAKER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
26A	250KΩ	1	33-5540		D13-132		Volume Control
B	Short		Not Req.		N		Attach to 26A per instructions
C	Switch		" "		41		" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO STUDEBAKER PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
27	1 Meg.	½	66-5101540	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
28	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. RF Plate Load
29	22KΩ	½	66-3221540	BTS-22K	Red-Red-Or. Converter Grid
30	270Ω	½	66-1273340	BW-½-270	Red-Vi.-Br. RF Converter Cathode
31	220KΩ	½	66-4221540	BTS-220K	Red-Red-Yl. Oscillator Grid
32	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. Converter Anode Dropping
33	470Ω	½	66-1473340	BTS-470	Yl.-Vi.-Br. IF Cathode
34	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. Screen Dropping
35	2.2 Meg.	½	66-5221540	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
36	15 Meg.	½	66-6151540	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
37	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
38	470KΩ	½	66-4471540	BTS-470K	Yl.-Vi.-Yl. Output Grid
39	220Ω	½	66-1223340	BW-½-220	Red-Red-Br. Output Cathode
40	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Filter
41	6800Ω	1	66-2684340	BTA-6800	Blue-Gray-Red Filter
42	100Ω	1	66-1104340	BW-1-100	Br.-Blk.-Br. Hash Suppression
43	100Ω	1	66-1104340	BW-1-100	Br.-Blk.-Br. " "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: PHILCO STUDEBAKER PART No.	MALLORY PART No.	RADIART PART No.	INSTALLATION NOTES
44	Interrupter	6.3	115 ~	83-0026	859	5326P	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: PHILCO STUDEBAKER PART No.	STANCOR PART No.	THORDARSON PART No.	
45	6.0V DC @ 1.6A	360V CT @ .036A			65-0404	P-6301		

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: PHILCO STUDEBAKER PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
46	4000Ω	3.1Ω	370Ω	.4Ω	65-0395	A-3865	T22S46		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: PHILCO STUDEBAKER PART No.	JENSEN PART No.	UTAH PART No.	INSTALLATION NOTES
	FIELD RES.	VC IMP.				
47A B	4.6Ω	3.1Ω	73-0072 73-0068			Alternate Speaker
	CONE DIA.	VC DIA.				
48	6-7/8"	5/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: PHILCO STUDEBAKER PART No.	MEISSNER PART No.	
49	Ant. Choke Coil		1.2Ω	65-0378		
50	Ant. Coil		16Ω	76-2197		Item 50, 51 & 52 are slug tuned and ganged together and obtained as complete assembly.
51	Image Trap Coil		28Ω	76-2197		
52	Osc. Coil		3Ω	76-2197		
53	Osc. Tracking Coil		9.5Ω	65-0401		
54	Input IF	21Ω	20Ω	65-0399	16-6658	
55	Output IF	53Ω	7Ω	65-0400		
56	A Choke		0Ω	32-1644		
57	Vibrator Choke		0Ω	65-0151		

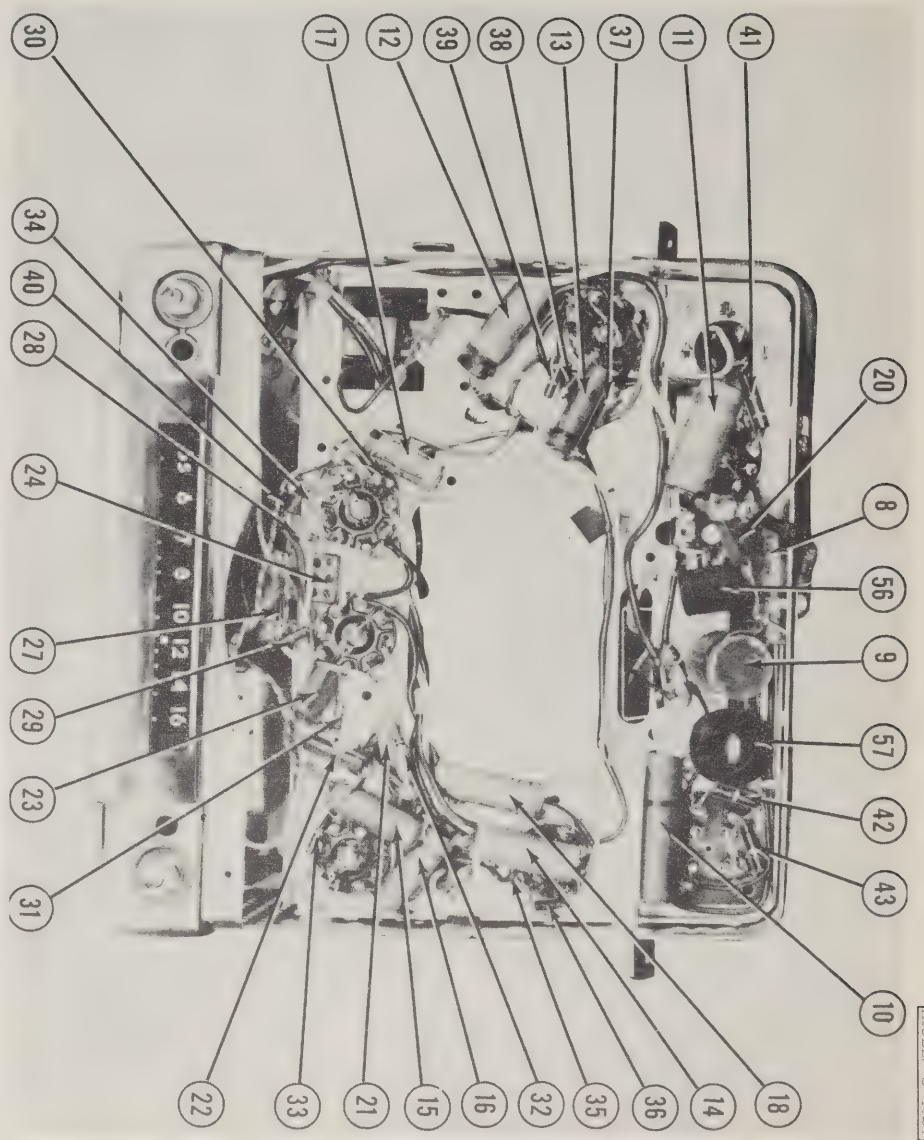
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: PHILCO STUDEBAKER PART No.		INSTALLATION NOTES
58	Bayonet	6-8	0.25	Blue	34-3064		Type 44

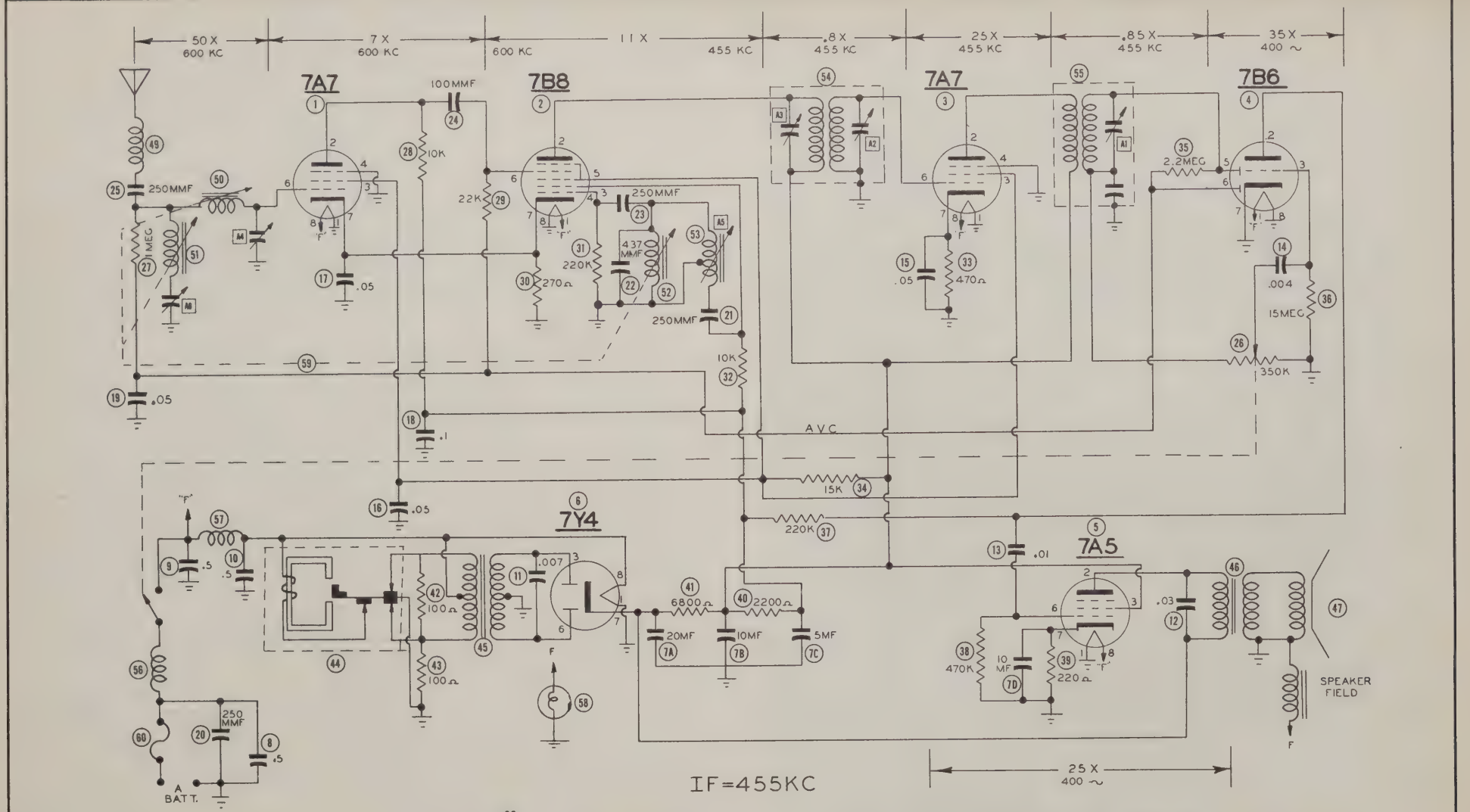
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO STUDEBAKER PART No.	NOTES
59	Tuner Assembly	76-2197	
60	Fuse	45-2559	SFE-14
A4	Trimmer	63-0064	RF Adjustment
	Dial Background	55-1159	Model S-4624
	" "	54-7152	" S-4625
	Dial	27-5900	" S-4624
	"	27-5922	" S-4625
	Pointer	56-3234	" S-4624
	"	76-2475	" S-4625

CHASSIS—BOTTOM VIEW



STUDEBAKER (PHILCO) MODEL S-4624, S-4625



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0V.	62V.DC	50V.DC	0V.	0V.	21V.DC	1.8V.DC	6V.DC
2	7B8	0V.	88V.DC	65V.DC	72V.DC	50V.DC	76V.DC	1.8V.DC	6V.DC
3	7A7	0V.	88V.DC	50V.DC	0V.	0V.	0V.	0V.	6V.DC
4	7B6	6V.DC	70V.DC	35V.DC	0V.	36V.DC	36V.DC	0V.	0V.
5	7A5	0V.	152V.DC	88V.DC	0V.	0V.	0V.	6V.DC	6V.DC
6	7Y4	0V.	0V.	180V.AC	0V.	0V.	180V.AC	162V.DC	6V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0Ω	80KΩ	85KΩ	0Ω	0Ω	3.5MEG.	300Ω	.1Ω
2	7B8	0Ω	70KΩ	60KΩ	180KΩ	85KΩ	3 MEG.	300Ω	.1Ω
3	7A7	0Ω	70KΩ	85KΩ	0Ω	0Ω	18Ω	460Ω	.1Ω
4	7B6	.1Ω	280KΩ	15 MEG.	0Ω	280K	3 MEG.	0Ω	0Ω
5	7A5	0Ω	60KΩ	70KΩ	INF.	INF.	460KΩ	190Ω	.1Ω
6	7Y4	0Ω	INF.	370Ω	INF.	INF.	320Ω	60KΩ	.1Ω

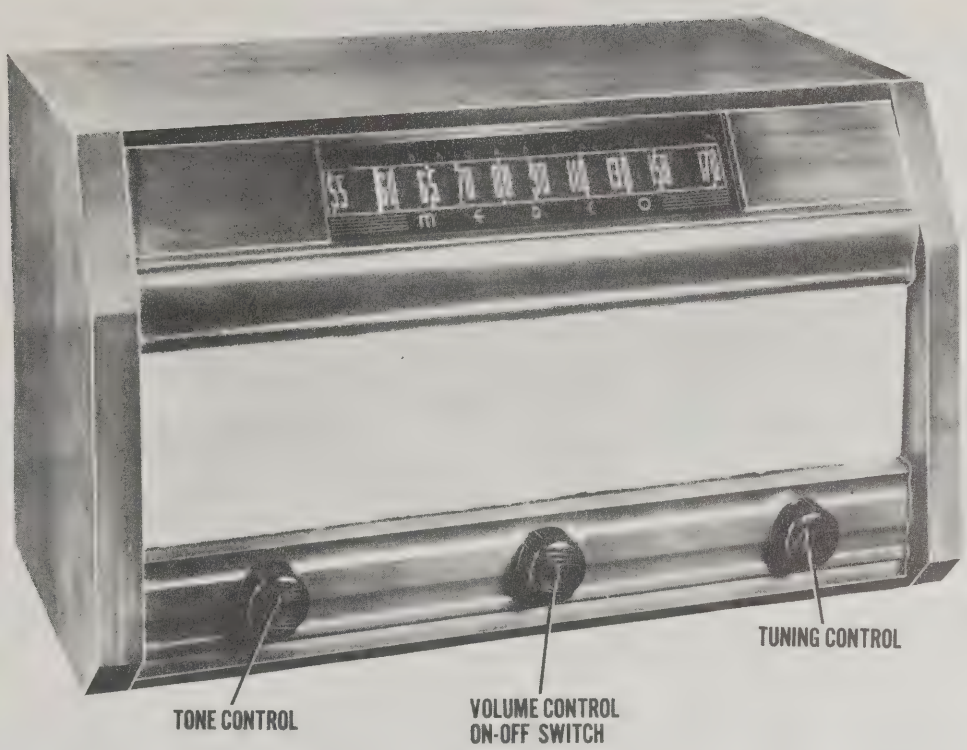
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4711-32

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.

1 - DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

TELESONIC (MEDCO)
MODEL 1636



TELESONIC (MEDCO)
MODEL 1636

MEDCO MODEL 1636

TRADE NAME	Telesonic (Medco), Model 1636
MANUFACTURER	Telesonic Corp. of America, 5 W. 45th St., New York 19, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 14A7 RF Amp., 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC — RATING .250 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	550-1700KC — **SHORT WAVE** 5.5 - 18MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD. capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD.	High side to ext. ant. lead. Low side to chassis.	1700KC	"	"	A5	Adjust for maximum output.
3	200MMFD.	"	1400KC	Tune for maximum output.	"	A6	" " " "
4	200MMFD.	"	600KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MEDCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	14A7	14A7	8V	
2	Converter	14Q7	14A7	8AL	
3	IF Amp.	14A7	14A7	8V	
4	Det.-AVC-AF	14B6	14B6	8W	
5	Power Output	35A6	35A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MEDCO PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150		BRD4[illegible]	2N514	M-2x40-150	TA-240	PRSA150-40-20	Filter - Red
B	20	150							" - Green
8	40	150		BR4015	TC48	M-40-150	UT-401	PRS150-40	" -
9	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
10	.02	200		DT4[illegible]	TP423	S-4-02	TC-12	484-02	Output Plate Bypass
11	.01	400		DT4[illegible]	TP421	S-4-01	TC-11	484-01	Audio Coupling
12	.005	600		DT[illegible]	TP408	S-6-005	TC-25	684-005	Tone Compensation
13	.005	600		DT[illegible]	TP408	S-6-005	TC-25	684-005	Audio Coupling
14	.05	200		DT4S5	TP426	S-4-05	TC-15	484-05	AVC Filter
15	350	500		5W5T35	MC243	MO.5-335	1FM-34	1468-00035	Audio Plate Bypass
16	100	500		5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Audio Grid Filter
17	25	500		5W5Q25	MC220	MO.5-425	MS-425	1468-000025	Diode Coupling
18	250	500		5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Diode Filter
19	100	500		5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Osc. Grid Capacitor
20	250	500		5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Fixed Padder
21	300	500		5W5T3	MC241	MO.5-33	1FM-33	1468-0003	RF Coupling
47	.05	400		DT4S5	TP426	S-4-05	TC-15	484-05	Ant. Coupling

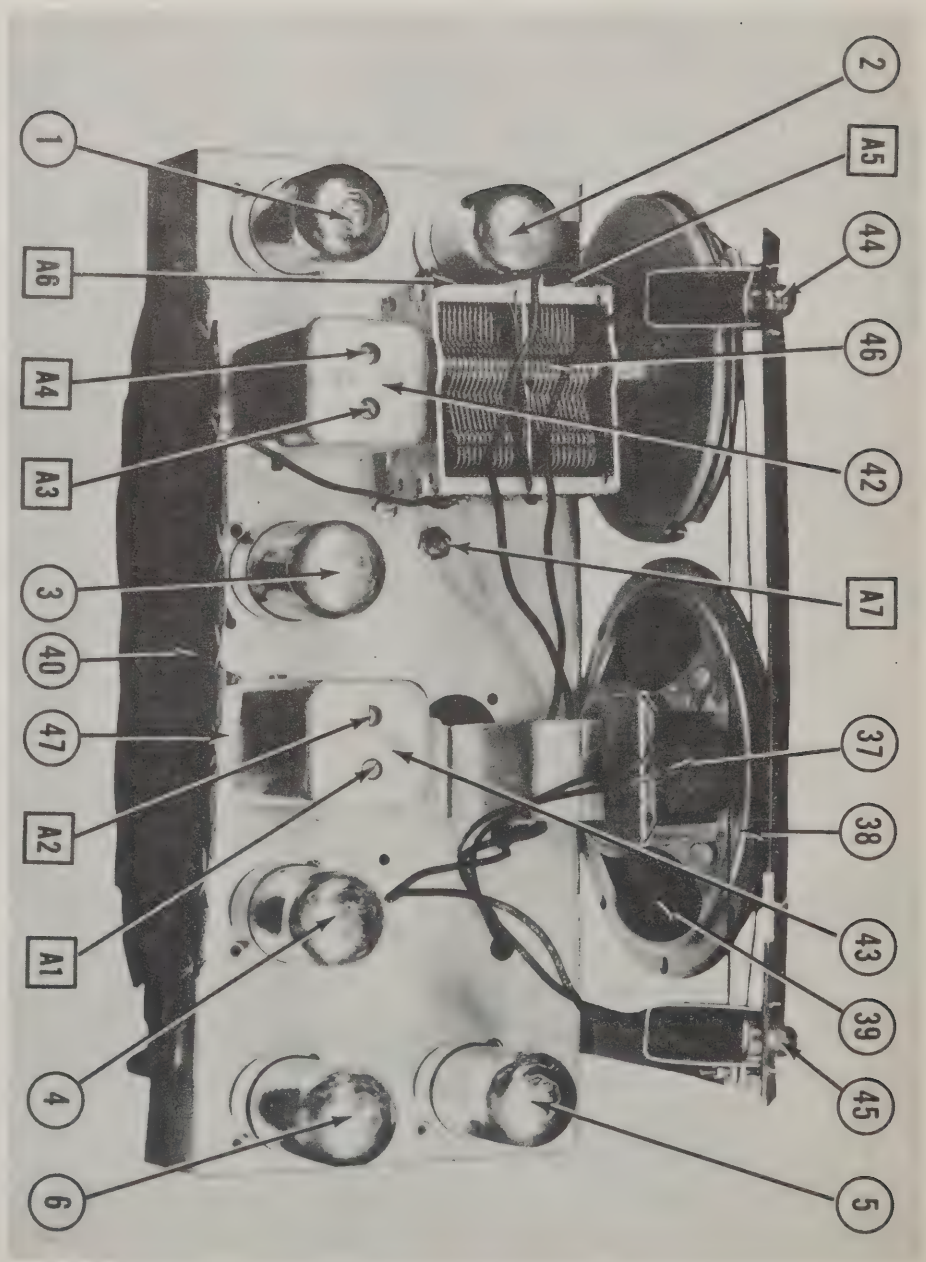
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MEDCO PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 22A per instructions
C	Switch			M26	41	SW-A	" " " " "
23A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 23A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MEDCO PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
24	2500Ω	½		BTS-2700	Red-Grn.-Red RF Plate Load
25	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Converter Grid
26	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
27	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
28	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
29	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Diode RF Filter
30	4 Meg.	½		BTS-3.9 Meg.	Yl.-Blk.-Grn. AF Grid
31	330KΩ	½		BTS-330K	Or.-Grn.-Yl. AF Plate Load
32	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
33	500Ω	5		AB-500	Filter
34	51Ω	1		BW-1-47	Grn.-Br.-Blk. Bias Network
35	51Ω	1		BW-1-47	Grn.-Br.-Blk. " "
36	200Ω	1		BW-1-220	Red-Blk.-Br. Pilot Light Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MEDCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
37	1800Ω	2.7Ω	140Ω	.55Ω		A-3876	T22545		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MEDCO PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
38	PM	2.7Ω		Mod. P5-X		
	CONE DIA.	VC DIA.				
39	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

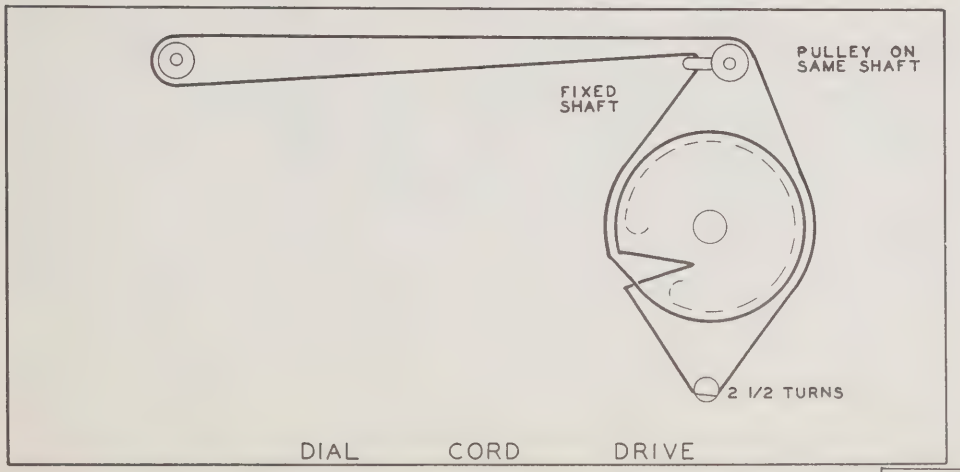
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MEDCO PART No.	MEISSNER PART No.	
40	Loop Ant.	.1Ω	1.7Ω			
41	Osc. Coil		5Ω		14-1040	
42	Input IF	17Ω	17.5Ω		16-6658	
43	Output IF	17Ω	17Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MEDCO PART No.		
44	Bayonet	3.2	0.15	White			Type 1490
45	"	"	"	"			" "

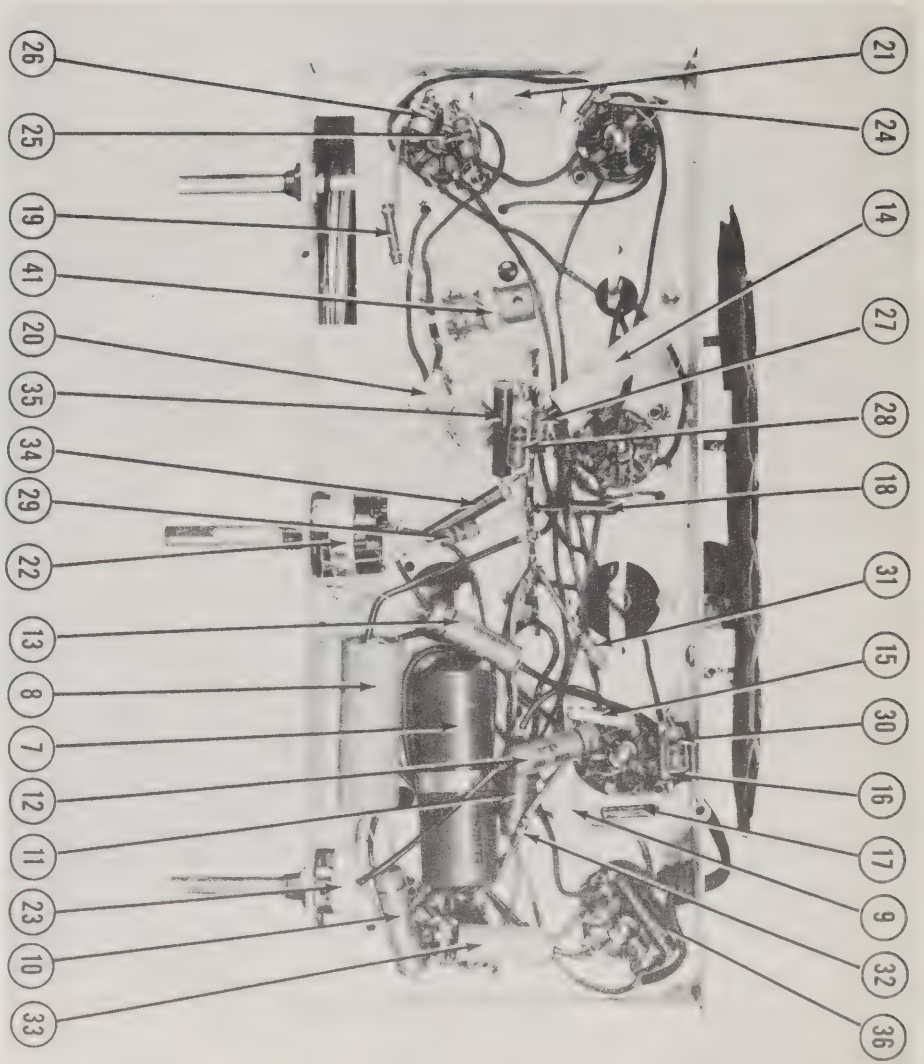
MISCELLANEOUS

ITEM No.	PART NAME	MEDCO PART No.	NOTES
46	2 Gang Var. Cap.		15-482 MMF (each section)

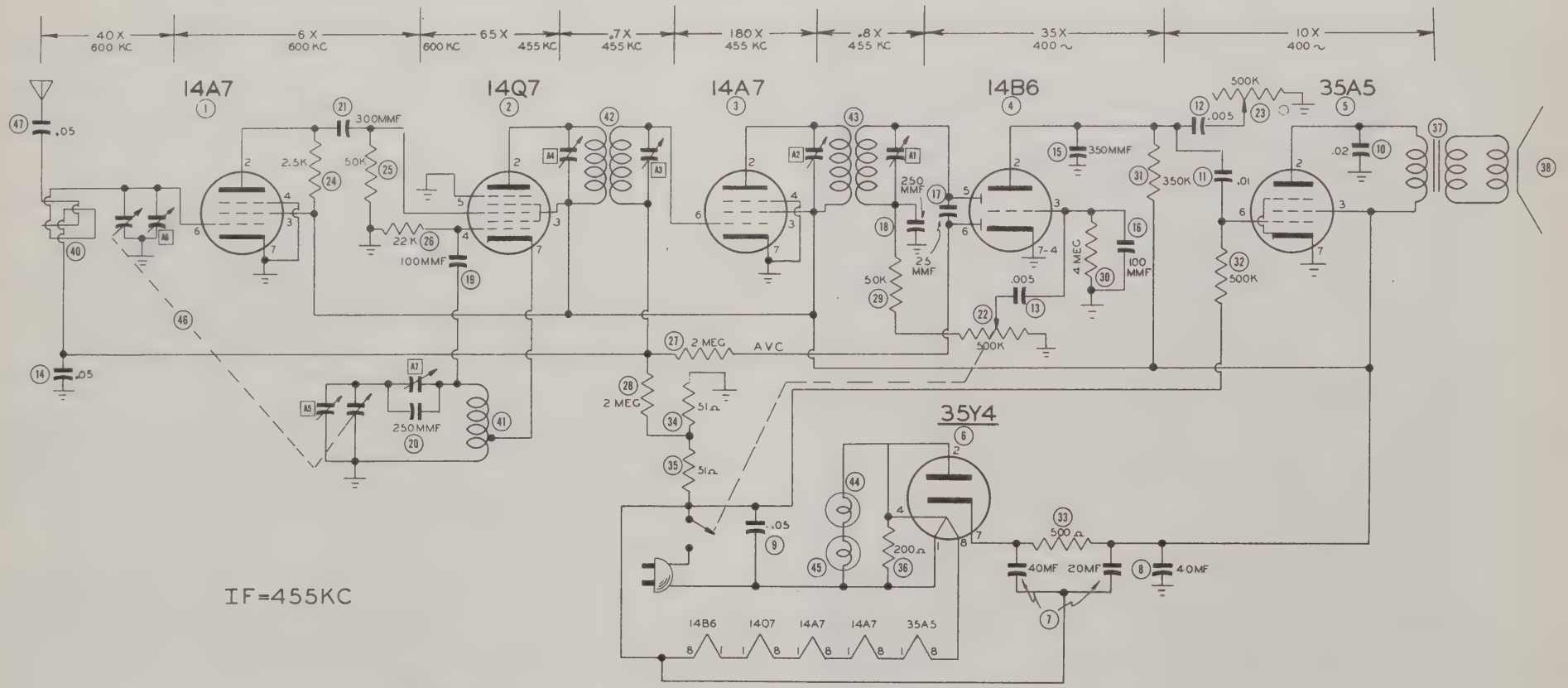


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



TELESONIC (MEDCO)
MODEL 1636



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	28V. AC	70V. DC	83V. DC	0V.	0V.	-6V. DC	0V.	38V. AC
2	14Q7	14V. AC	83V. DC	83V. DC	-8V. DC	0V.	0V.	0V.	28V. AC
3	14A7	38V. AC	83V. DC	83V. DC	0V.	0V.	-6V. DC	0V.	50V. AC
4	14B6	14V. AC	50V. DC	-7V. DC	0V.	-.8V. DC	-6V. DC	0V.	-8 V. DC 3 V. A.C.
5	35A5	50V. AC	80V. DC	83V. DC	0V.	0V.	-2V. DC	0V.	87V. AC
6	35Y4	117V. AC	112V. AC	0V.	112V. AC	-6V. DC	0V.	120V. DC	87V. AC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	110 Ω	125KΩ	100KΩ	0 Ω	0Ω	2 MEG.	0 Ω	125Ω
2	14Q7	100 Ω	100KΩ	100KΩ	20KΩ	0Ω	45 KΩ	.8Ω	110 Ω
3	14A7	125 Ω	100KΩ	100KΩ	0 Ω	0Ω	2 MEG.	0 Ω	135Ω
4	14B6	100 Ω	450KΩ	4 MEG.	0Ω	530KΩ	4 MEG.	0 Ω	95 Ω
5	35A5	135 Ω	100 KΩ	100KΩ	INF.	INF.	460KΩ	0 Ω	180 Ω
6	35Y4	190 Ω	185Ω	INF.	185Ω	95Ω	INF.	100KΩ	180 Ω

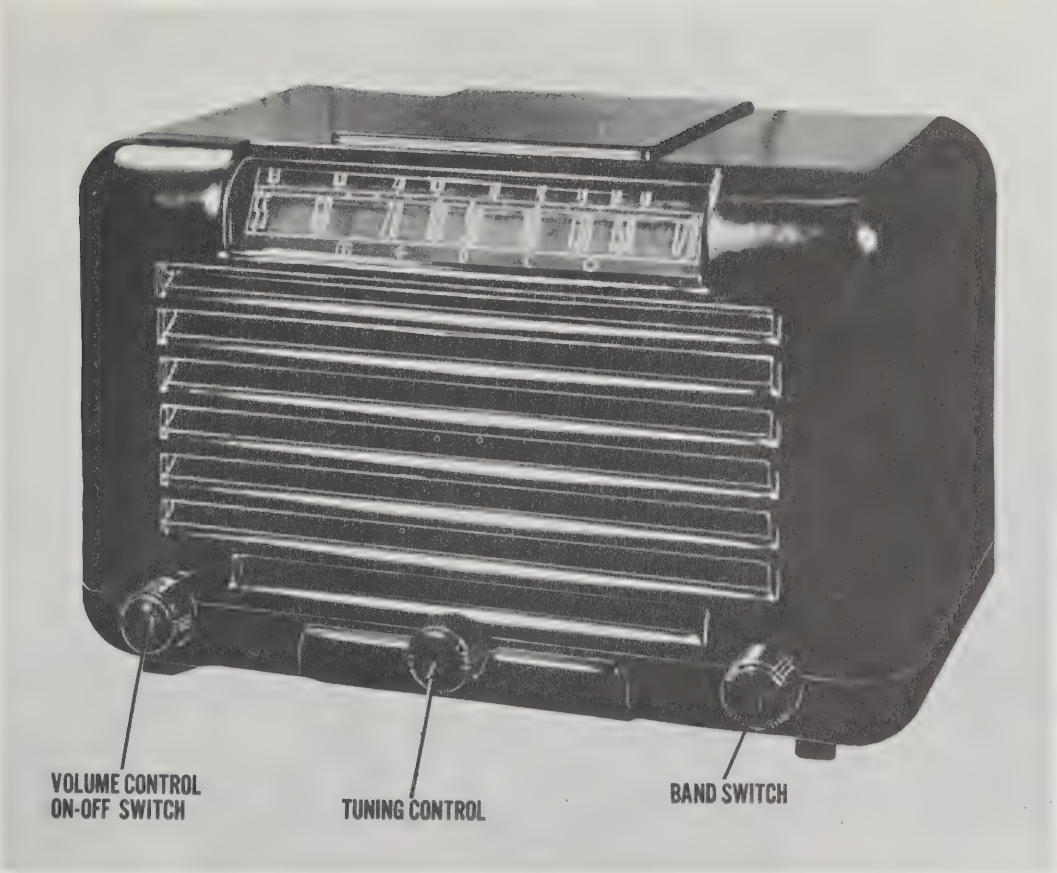
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4.711-33

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TELESONIC (MEDCO)
MODEL 1643



TELESONIC (MEDCO)
MODEL 1643

MEDCO MODEL 1643

TRADE NAME	Telesonic (Medco), Model 1643
MANUFACTURER	Telesonic Corp. of America, 5 W. 45th St., New York 19, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50L6GT Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	550-1700KC RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD. capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD	High side to ext ant. lead. Low side to chassis.	1700KC	"	"	A5	Adjust for maximum output.
3	200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "
4	200MMFD	"	600KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made.

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PARTS LIST AND DESCRIPTIONS

TELESONIC (MEDCO)
MODEL 1643

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MEDCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter		14Q7	8AL	
2	IF Amp.		14A7	8V	
3	Det.-AVC-AF		14B6	8W	
4	Power Output		50L6GT	7AC	
5	Rectifier		35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MEDCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150		BRD4415	2N511	M-2x40-150	TA-440	PRSA150-40-40	Filter - Red
B	40	150							" - "
7	.1	200		DT4P1	TP428	S-4-1	TC-1	484-.1	Line Filter
8	.02	200		DT4S2	TP423	S-4-02	TC-12	484-02	Output Plate Bypass
9	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
10	.005	600		DT6D5	TP408	S-6-005	TC-25	684-005	Tone Compensation
11	.01	400		DT4S1	TP421	S-4-01	TC-11	484-01	Audio Coupling
12	.1	400		DT4P1	TP428	S-4-1	TC-1	484-.1	AVC Filter
13	.02	200		DT4S2	TP423	S-4-02	TC-12	484-02	Ext. Ant. Coupling
14	350	500		5W5T35		MO.5-335	1FM-335	1468-00035	Audio Plate Bypass
15	250	500		5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Diode Filter
16	100	500		5W5T1	MC235	MO.5-31	1FM-31	1468-0001	Osc. Grid Capacitor
17	250	500		5W5T25	MC240	MO.5-325	1FM-325	1468-00025	Fixed Padder

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MEDCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch			M26	41	SW-A	" " " " "

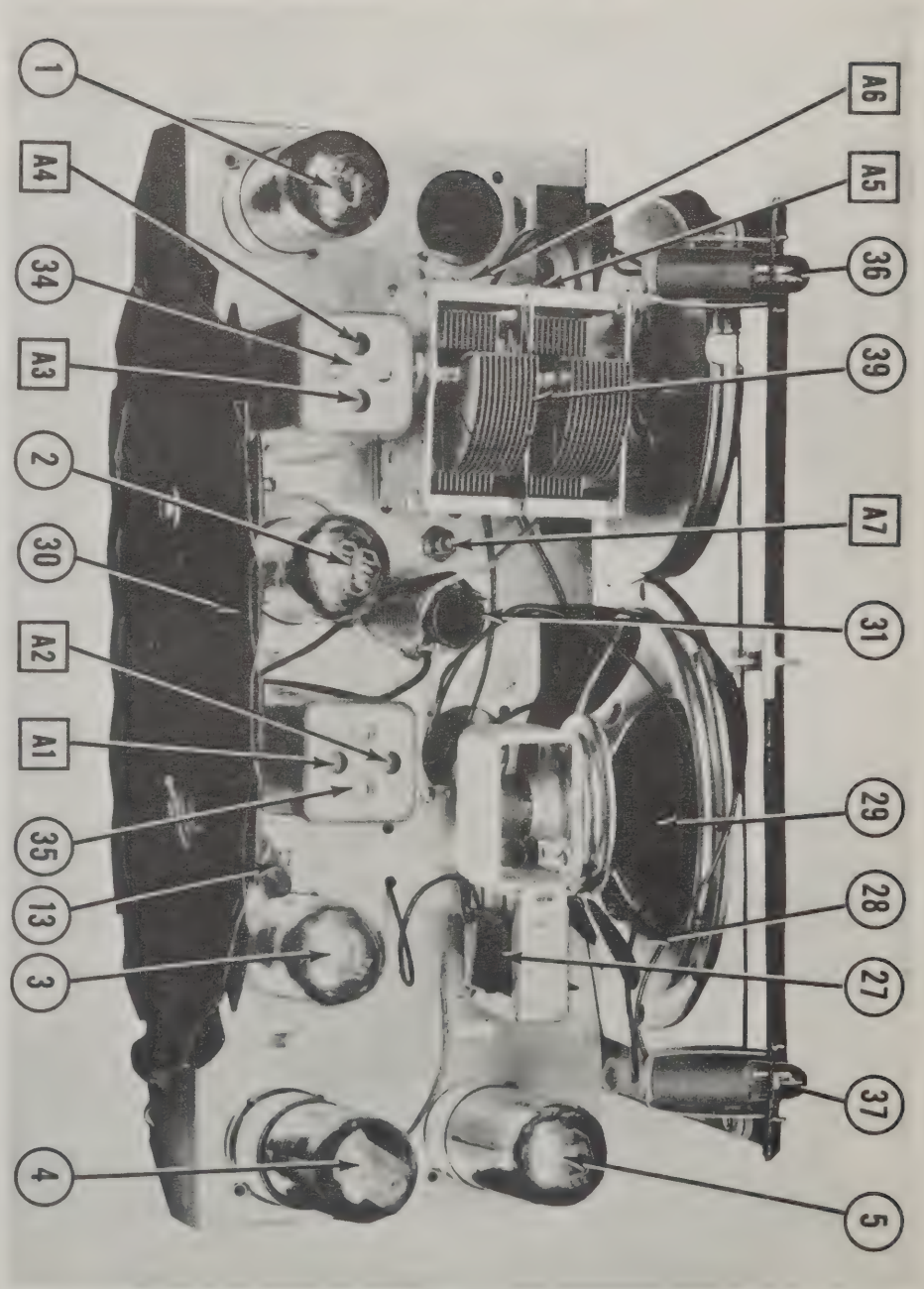
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MEDCO PART No.	IRC PART No.	IDENTIFICATION CODES
19	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
20	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
21	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
22	330KΩ	½		BTS-330K	Or.-Grn.-Yl. AF Plate Load
23	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
24	170Ω	½		BW-½-180	Br.-Vi.-Br. Output Cathode
25	470Ω	5		AB-500	Filter
26	200Ω	3		AB-200	Red-Blk.-Br. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MEDCO PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
27	2400Ω	3.0Ω	150Ω	.5Ω		A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MEDCO PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
28	PM	3.0Ω		Mod. P5-X		
	CONE DIA.	VC DIA.				
29	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

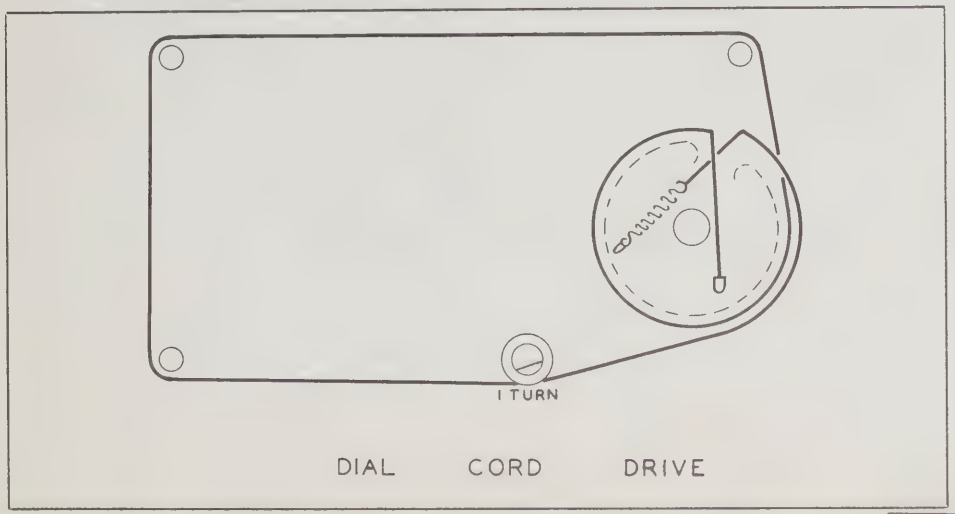
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MEDCO PART No.	MEISSNER PART No.	
30	Loop Ant.	.1Ω	1.5Ω			
31	SW Ant.Coil	.1Ω	0Ω		14-1044	
32	Osc. Coil		5.5Ω		14-1040	
33	SW Osc.Coil		0Ω		14-1046	
34	Input IF	24Ω	23Ω	S-103	16-6658	
35	Output IF	14Ω	14Ω	S-104	16-6660	

DIAL LIGHT

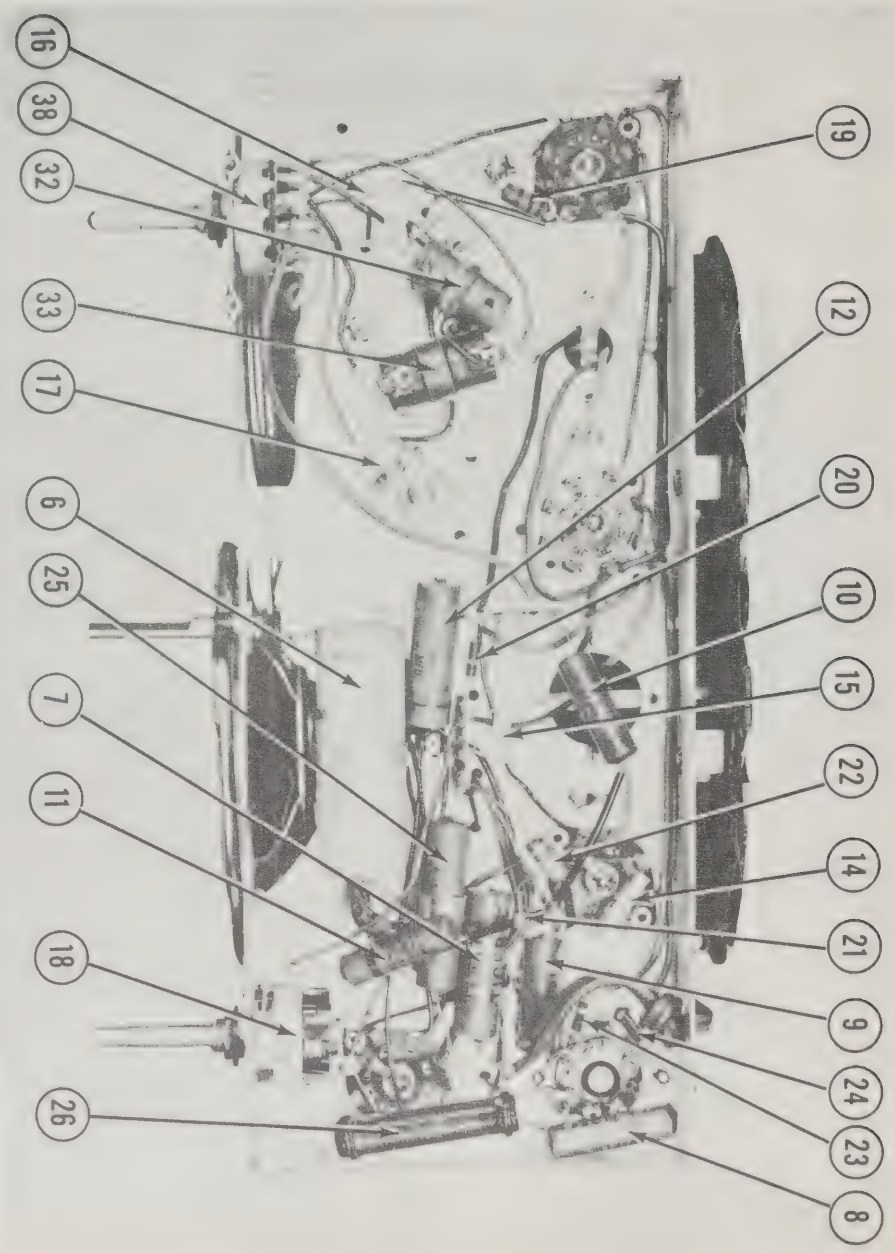
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MEDCO PART No.		
36	Bayonet	3.2	0.15	White			Type 1490
37	"	3.2	0.15	"			" "

MISCELLANEOUS

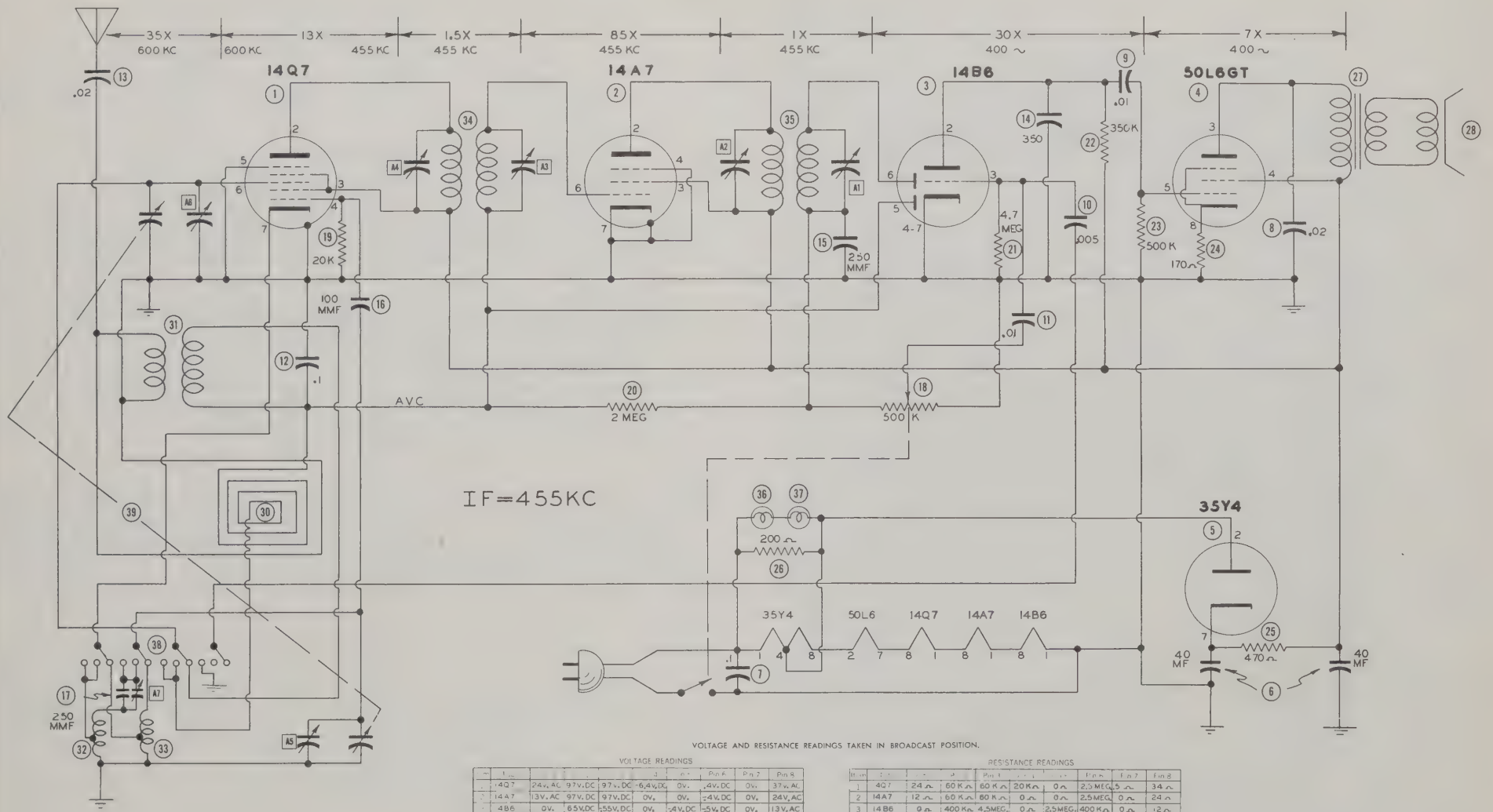
ITEM No.	PART NAME	MEDCO PART No.	NOTES
38	Bandswitch		
39	2 Gang Var. Cap		15-482 MMF (each section)



CHASSIS—BOTTOM VIEW



TELESONIC (MEDCO)
MODEL 1642



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

	14Q7	24 v. AC	97 v. DC	97 v. DC	-6.4 v. DC	0 v.	-.4 v. DC	0 v.	37 v. AC
	14A7	13 v. AC	97 v. DC	97 v. DC	0 v.	0 v.	-4 v. DC	0 v.	24 v. AC
	14B6	0 v.	65 v. DC	+55 v. DC	0 v.	-.4 v. DC	-5 v. DC	0 v.	13 v. AC
	50L6GT	0 v.	86 v. AC	92 v. DC	97 v. DC	0 v.	0 v.	37 v. AC	6 v. DC
	35Y4	117 v. AC	114 v. AC	0 v.	114 v. AC	0 v.	115 v. AC	125 v. AC	86 v. AC

RESISTANCE READINGS

1	4Q7	24 Ω	60 KΩ	60 KΩ	20 KΩ	0 Ω	2.5 MEG.	5 Ω	34 Ω
2	14A7	12 Ω	60 KΩ	60 KΩ	0 Ω	0 Ω	2.5 MEG.	0 Ω	24 Ω
3	14B6	0 Ω	400 KΩ	4.5 MEG.	0 Ω	2.5 MEG.	400 KΩ	0 Ω	12 Ω
4	50L6GT	INF.	75 Ω	60 KΩ	60 KΩ	460 KΩ	INF.	34 Ω	150 Ω
5	35Y4	100 Ω	100 Ω	INF.	100 Ω	Nf.	100 Ω	60 KΩ	75 Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

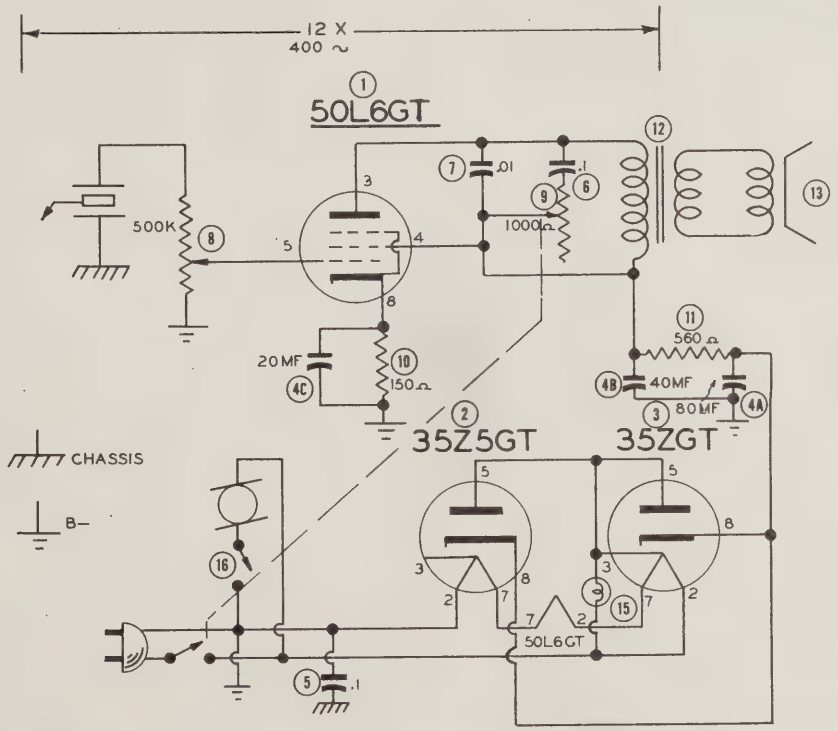
4711-34

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TEMPLE MODEL E-301

TRADE NAME Temple, Model E-301
MANUFACTURER Templetone Radio Mfg. Corp., Garfield Ave., New London, Conn.
TYPE SET AC Operated Phonograph with 3 Tube Amplifier and Speaker
TUBES (THREE) Types, 50L6GT Power Output, (2) 35Z5GT Rectifier.
POWER SUPPLY 110-120 Volts AC RATING .240 Amp. @ 117 Volts AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	50L6 GT	0V.	88V. AC	106V. DC	112V. DC	0V.	0V.	36V. AC	6.4V. DC
2	35Z5 GT	0V.	117V. AC	114 V. AC	0V.	114V. AC	0V.	88V. AC	135V. DC
3	35Z5 GT	0V.	0V.	7.4V. AC	0V.	114V. AC	0V.	36V. AC	135V. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	50L6GT	INF.	75Ω	70 KΩ	70KΩ	500 KΩ	INF.	30Ω	140Ω
2	35Z5GT	INF.	100Ω	96Ω	INF.	96Ω	0Ω	75Ω	70KΩ
3	35Z5GT	INF.	0Ω	8Ω	INF.	96Ω	INF.	30Ω	70KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4711-35

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TEMPLE PART No.	STANDARD REPLACEMENT		
1	Power Output	50L6GT	50L6GT	7AC	
2	Rectifier	35Z5GT	35Z5GT	6AD	
3	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TEMPLE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
4A	80	150		UP7DJ19	FP409†	DY-419†	EL-443†	AF886D4A†	◓ Filter
B	40	150							◬ "
C	20	150							Cath. Bypass
5	.1	600		DT6P1	TP418	S-6-1	TC-1	684-.1	Line Isolation
6	.1	400		DT4P1	TP428	S-4-1	TC-1	484-.1	Tone Compensation
7	.01	600		DT6S1	TP410	S-6-01	TC-11	684-01	" "

†Parallel sections for 80 MFD.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
8A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 8A per instructions
9A	1000Ω	1		MR14	D11-108	M-8-S	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 9A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TEMPLE PART No.	IRC PART No.	
10	150Ω	1		BW-1-150	Br.-Grn.-Br. Output Cathode
11	560Ω	2		BT-2-560	Grn.-Blue-Br. Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TEMPLE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
12	18602Ω	3.29Ω	150Ω	.58Ω	851.514	A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TEMPLE PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
13	PM	3.2Ω	780.008	Mod. P5-X		
	CONE DIA.	VC DIA.				
14	4-5/8"	1/2"	NOT READILY REPLACEABLE -USE COMPLETE SPEAKER UNIT			

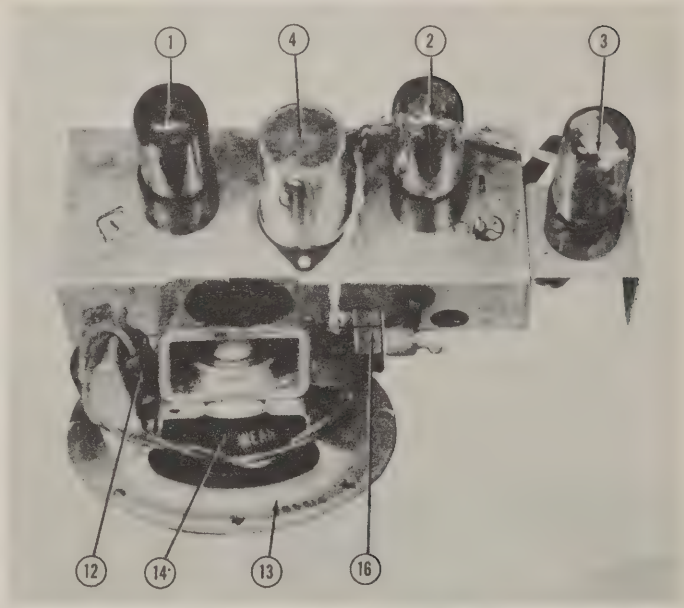
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TEMPLE PART No.		
15	Bayonet	6-8	0.15	Brown			Type 47

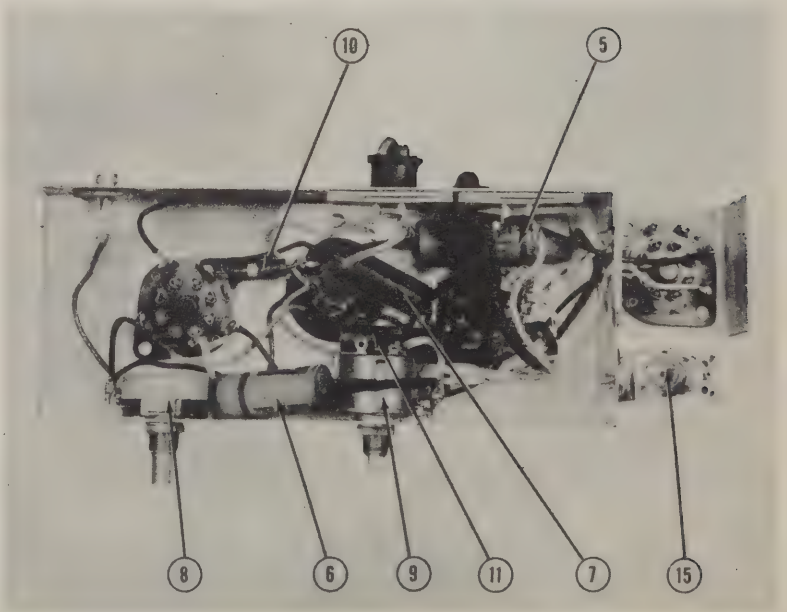
MISCELLANEOUS

ITEM No.	PART NAME	TEMPLE PART No.	NOTES
16	Switch Crystal Cartridge		Phono Motor ASTATIC Type L-70

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



SUPPLEMENT

WESTINGHOUSE SUPPLEMENT H-104 A, H-105 A, H-107 A, H-108 A, H-154

WESTINGHOUSE MODELS H-104A, H-105A, H-107A, H-108A, H-154

These models are the same as Models H-104, H-105, H-107, H-108 with the exceptions listed below. Also note the change in the tone control circuit shown on schematic diagram on reverse side of this page.

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WESTINGHOUSE PART No.	STANDARD REPLACEMENT		
4	Det.-AVC-AF	6AT6	6AT6	7BT	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WESTINGHOUSE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
9	NOT USED								
14	NOT USED								
15	NOT USED								
73	.002	600	RCP10W6202A	DT6D2	TP405	S-6-002	TC-22	684-002	Audio Coupling

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WESTINGHOUSE PART No.	IRC PART No.	
41	NOT USED				
42	NOT USED				
43	470KΩ	½	RC10AE474M	BTS-470K	Y1.-V1.-Y1. AF Plate Load
44	NOT USED				
74	.10 Meg.	½	RC10AE106M	BTS-10 Meg	Br.-Blk.-Blue AF Grid

ADD THE FOLLOWING PART NUMBERS

Loop Antenna Coil.....V-3283-1
BC Antenna Coil.....V-3238
SW Antenna Coil.....V-3224
BC RF Coil.....V-3245
BC Osc. Coil
SW Osc. Coil V-3243

Osc. Cathode Coil.....V-3313
Input IF Coil.....V-3218
Output IF Coil.....V-3249
Band - Phono Switch.....V-3289
Pushbutton Assembly.....V-3317
Tuning Capacitor.....V-3233

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
4	6AT6	-5 V. DC	0V.	0V.	6.2 V. AC	-5 V. DC	0V.	70 V. DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
4	6AT6	10 MEG.	0Ω	0Ω	0Ω	500KΩ	0Ω	700KΩ

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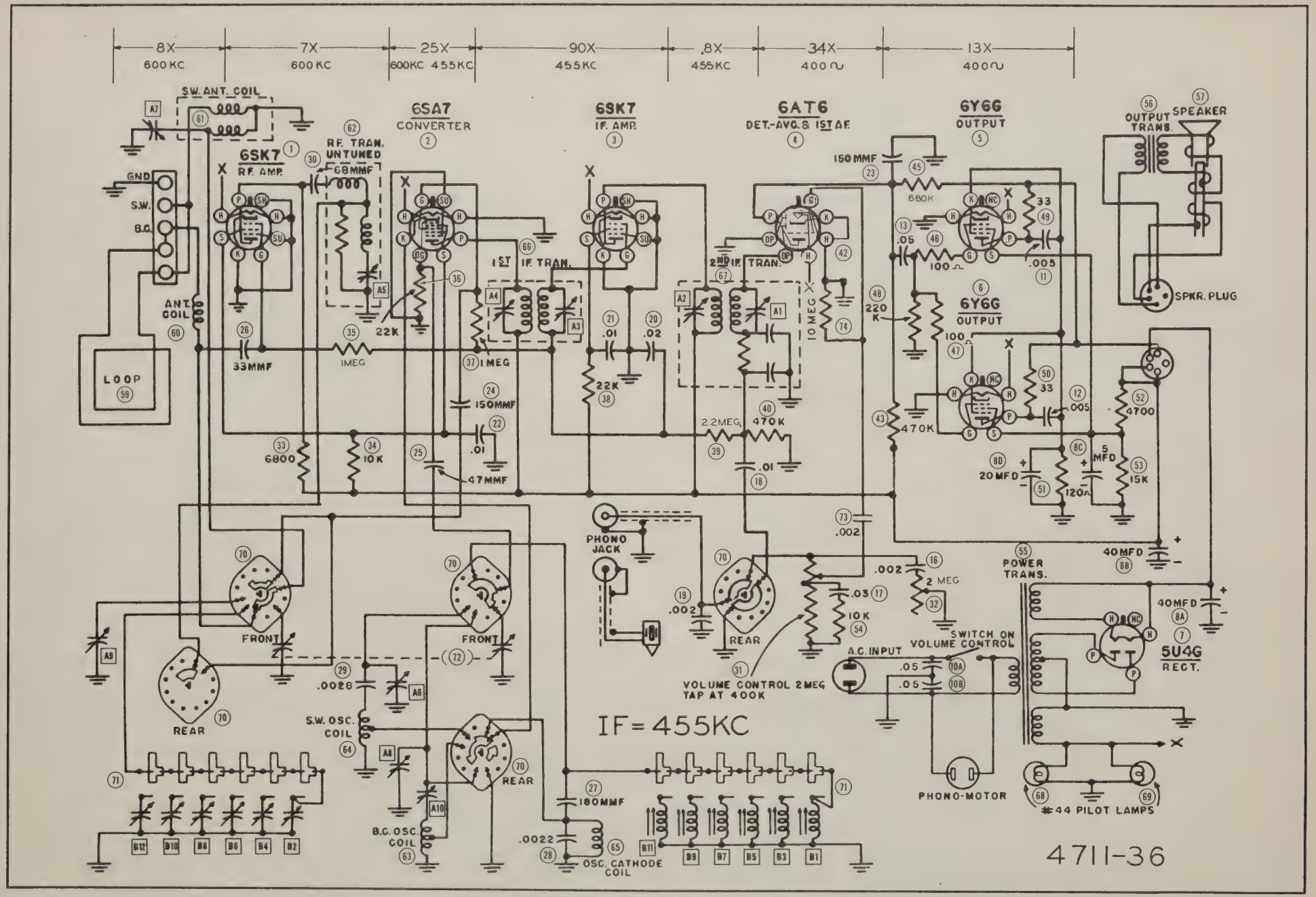

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ADMIRAL MODELS RC160, RC160A, RC161, RC161A, and RC200 RECORD CHANGERS

With a few exceptions, the service manual for the RC200 may be used in servicing the models RC160, RC160A, RC161, and RC161A. In servicing any of these types, refer to the changer model number which appears on a small label attached to the underside of the mechanism. Models RC160 and RC161 do not have provision for manual reject.

The following table indicates the parts which are not interchangeable for Models RC160, RC160A, and RC200. Differences between the RC160, RC161, RC-160A, and RC161A are listed in the service bulletin on the opposite side of this page.

Ref. No.	RC200	RC160A	RC160	DESCRIPTION
1	G400A128	G400A109	G400A109	Cover assembly
6	G400B70	G400B68	G400B68	Head assembly
12	402A66	402A57	402A57	Lift adjusting collar
14	G400A130	G400A91	G400A91	Pickup assembly
22	G400A12-2	G400A12	G400A12	Centerpost
27	404C8	G400B80	G400B80	Base
29	G400A46-1 G400A46-2	G400A46-1 G400A46-2	Not used	Arm rest assembly (metal only) Arm rest assembly (wood and plastic)
32	402A60	60-875-C2-C1	60-875-C2-C1	Adjusting screw
34	405A49	405A42	405A42	Set-down spring
38	G400A125	G400A112	G400A112	Arm control plate
43	405A15	405A15	Not used	Hairpin spring
44	401A97	401A97	Not used	Reject catch
45	405A50	405A50	Not used	Reject catch support spring
46	G400A117	G400A117	G400A78	Eccentric cam assembly
52	G400A115	G400A115	Not used	Reject lever assembly
53	405A25	405A25	Not used	Reject lever spring
54	414A12	414A12	Not used	Reject trigger wire
60	G400A116	G400A116	Not used	Reject mounting plate and arm assembly
61	G400A111	G400A111	G400B56	Turntable mounting and guide rod assembly
63	402A62	402A62	402A5	Knurled roller

STALLING OF RECORD CHANGERS DURING CYCLE

Always follow this procedure for 407B1 Motors even if they are operating satisfactorily:

Any "stopping" or "stalling" of the turntable during the change cycle, even for an instant, is abnormal and calls for correction. Usually the turntable stops or pauses, but the motor keeps on running. In such cases, there is slippage at the idler wheel. This generally occurs only with the 407B1 motor. If the motor itself stalls, see section below headed "Stalling of Motors."

To stop slippage of the idler wheel or to prevent it from occuring, always proceed as follows:

1. If the motor has a fan on the bottom, it is a 407B1. In all cases, the idler wheel spring should be replaced on these motors with a

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new, stronger spring, Part No. 405A67. To do this, remove the three motor mounting screws.

2. *Remove the idler wheel and examine its bottom surface for grease* especially near the rim. If there is such grease, install a new idler wheel, Part No. G400A57. *Do not lubricate the new idler wheel shaft,* as the bearing is the self-lubricating type. However, transfer to the new idler, the small flat lubricated washer located *right against the idler wheel hub.* This washer is easily overlooked since it sticks to the idler wheel as it is removed.

3. If the idler wheel bottom is not greasy, clean the rubber tire of the idler wheel with carbon tetrachloride (Carbona cleaning fluid). Be sure all glaze is removed. Do not use sandpaper.

4. Clean the motor pulley with carbon tetrachloride by holding a rag against it while the motor is running. Also clean off the inside rim of the turntable. *Do not use lacquer thinner.*

5. When replacing the motor, be sure all washers are replaced in their original positions and that the metal spacers remain in the motor grommets. Motor mounting screws should be screwed in *tightly.*

STALLING OF MOTORS

As stated above, most complaints of stalling are due to slipping of the idler wheel. However, occasionally a motor may actually be stalled due to excessive load in the changer itself.

If both the changer and motor stall, the following are some of the methods of reducing the load:

1. Count the turns in the recoil spring No. 41. If there are more than 19, clip off enough turns to reduce to 19.

2. Be sure all points of friction in the record changer are properly lubricated. The following should always be lubricated with grease:

   A. Remove eccentric cam and lubricate its brass bushing.

   B. Lubricate inclined track of riser plate No. 40.

   C. Lubricate Cam of Arm Control Assembly No. 31 where it is contacted by riser plate No. 40C.

   D. Lubricate turntable bearings in die casting. Use grease in solid die cast bearings. Later changers use porous bronze bearings pressed into the die casting. These bronze bearings should be lubricated with a drop of No. 10 automobile engine oil. Be sure all oil is absorbed by bearing so it does not get to the knurled roller. *Do not* use light household or penetrating oil.

3. Check for binding between arm lift shaft No. 42A and the side of the inclined track in the riser plate assembly No. 40. If it is binding, file out the slot until shaft clears *and lubricate.*

4. Check centerpost No. 22 for binding at turntable hub. To correct, file one of the two flat shoulders on the centerpost bottom. File that shoulder which is on the opposite side (180° around) of the location of the bind. About 3 strokes across with a smooth file are generally sufficient.

5. Some of the early production changers used the eccentric cam No. 46, which was completely circular, that is, it did not have a flat cut into the metal disc making up the cam. As a result, the knurled roller bites into the metal of the cam causing the turntable to stop in cycle. If this happens, replace the cam.

6. Push plate spring No. 5 may be too stiff. Remove and compress it slightly.

7. A. Riser plate motion brackets No. 40B may be binding against guide rods No. 61.

   B. Riser plate No. 40 may be binding against guide rods No. 61.

   C. Guide rods No. 61 may be bent.

8. Some of the early production eccentric cam springs were too strong. Stretch them slightly.

PRECAUTIONS WHEN REPLACING MOTORS IN RECORD CHANGERS

When installing a record changer motor, it is very important that the rubber grommets have the correct type of metal spacers in them. These spacers should be the same length as the thickness of the grommet. Also, there must be a flat washer between the grommet and the mounting panel. In some cases two washers are used for proper spacing. The motor mounting screws should be screwed in tightly since the metal spacer in the grommet prevents the screw from compressing the grommet.

When installing a No. 407B3 motor in place of the No. 407B1 or vice versa, be sure to use the new motor mounting grommets and new metal spacers supplied with the new motor. Also, replace all washers exactly the same as with the original motor except that the flange on the end of some spacers takes the place of one of the washers. When installing motors, try to avoid touching the rubber of the idler wheel and be sure that you do not get any grease or lubricant on it. The inside rim of the turntable should be cleaned with a rag saturated with carbon tetrachloride.

CONSTANT REJECTING OF RECORDS

Occasionally a changer will go through its change cycle as soon as it begins to play each record.

The actual cause of this constant record rejection requires a careful investigation of each case individually. In some instances, the reject catch is not properly held by the reject arm. This requires adjusting the reject arm by loosening its two mounting screws and pushing it toward the eccentric cam.

In other cases, the reject catch passes under the stop tab. Many servicemen bend the eccentric cam upwards to stop this. However, in later production the factory has eliminated the hairpin spring and instead uses a thin shoulder on the top of the reject catch stud. The stud has also been lengthened. This raises the reject catch sufficiently so that it eliminates the trouble, providing of course, that other parts are adjusted correctly.

However, the reject catch and its support spring are no longer replaceable alone since they are permanently fastened to the eccentric cam assembly with the riveted stud. All orders for eccentric cams, Part No. G400A117 will be filled with the new assemblies having the reject catch permanently fastened in place.

In making repairs, if a slight raising of the reject catch will be beneficial and correct the trouble, we suggest the installation of one of these new eccentric cams, Part No. G400A117.

Any changer requiring a new reject catch, Part No. 401A97 or support spring No. 405A50 should have a new eccentric cam G400A117 installed. Therefore, we will no longer fill orders for No. 401A97 or No. 405A50. Mark your service manuals to substitute G400A117 for No. 401A97 and No. 405A50.

BUMPY IDLER WHEELS

During the cold weather, idler wheels will often be found to have dents or be "bumpy." However, during the summer months, this condition occurs very seldom.

The above condition is easily explained by the fact that the idler wheel will be dented if it is on a motor and is subjected to a temperature below freezing as would be the case during shipment in the wintertime.

However, this type of dent usually works itself out after a few minutes normal operation so that the rubber is thoroughly heated. Another way to eliminate the dent is to remove the idler wheel and heat it to a temperature of 120°.

When servicing a record changer with a bumpy idler wheel, allow it to run a while. Occasionally a bump may not work itself out, and in such cases the idler wheel should be replaced.

DIFFERENCES BETWEEN RC160, RC160A, AND RC161, RC161A RECORD CHANGERS

Some Admiral sets are equipped with RC161 and RC161A record changers.

These changers are identical with the RC160 and RC160A, except for the shape of the pickup arm and the record clip on the cover assembly. The arm rest also has a different color. All of the service information on the RC160 and RC160A manuals applies to these other models. Even the pickup arms and record clips are interchangeable.

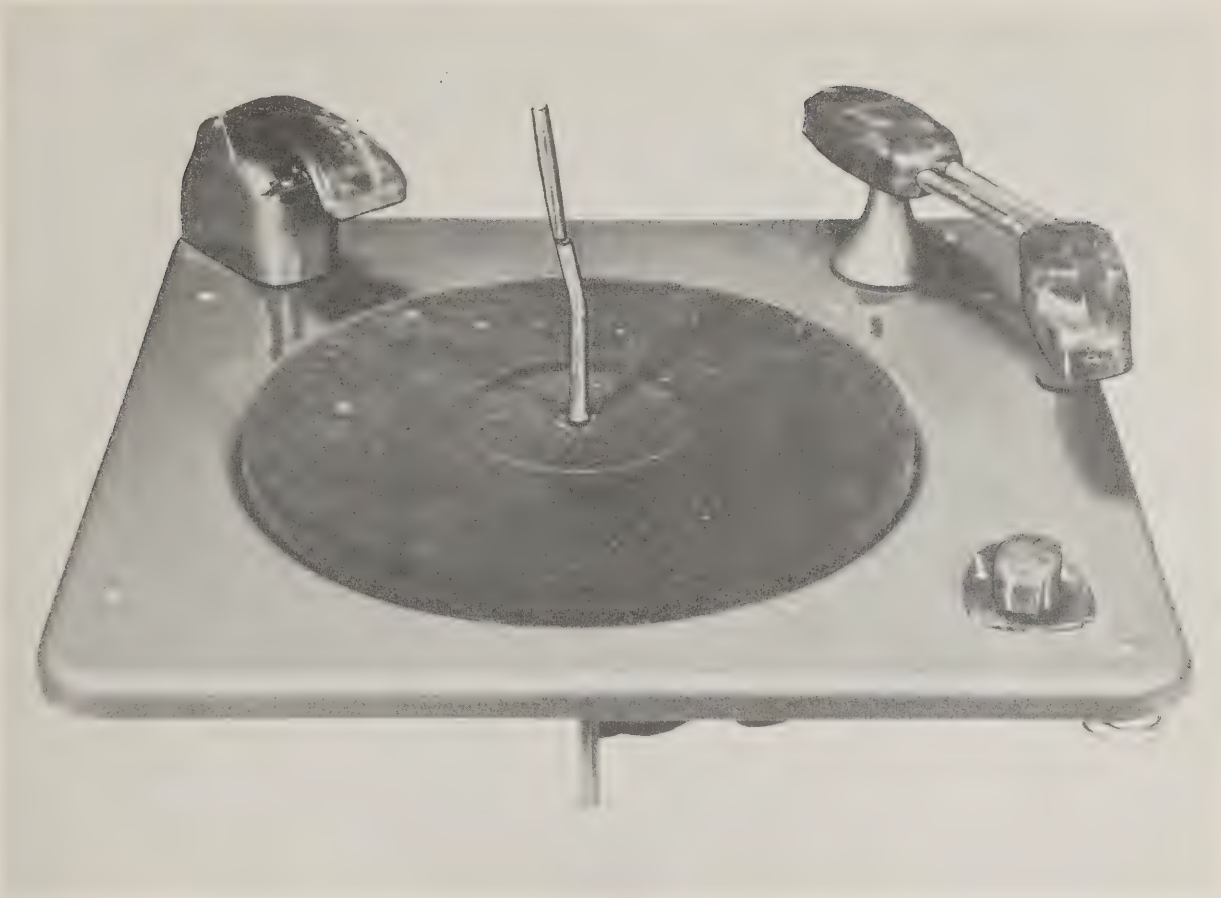
However, if you wish to order the exact parts used in the RC161 and RC161A, use the following part numbers:

G400A110 Cover and Record Clip Assembly (RC160 uses G400A109).

G400A92 Pickup Arm Assembly (RC160 uses G400A91).

G400A46-3 Arm Rest Assembly, for metal base (RC160 uses G400A46-1).

G400A46-4 Arm Rest Assembly, for wood or plastic base (RC160 uses G400A46-2).



TOP VIEW

GENERAL INFORMATION

The V-M Model 800 is a single-post changer designed to play automatically twelve 10-inch or ten 12-inch records, not intermixed. This changer has a single knob control for Off-Manual-Automatic and Reject. Any record may be rejected while playing by turning the control knob to reject momentarily. The last record will be repeated until the changer is turned off. Power supply is 117 v., 60 cycle AC, unless otherwise specified. The Model 800 uses Astatic cartridge, type L-70, or equivalent.

Manufactured by V-M CORPORATION, FOURTH AND PARK STREETS, BENTON HARBOR, MICHIGAN

THIS CHANGER HAS BEEN USED IN POSTWAR PRODUCTION BY THE FOLLOWING MANUFACTURERS:

The Sparks-Withington Company . . . . . Jackson, Mich.
Templetone Radio Manufacturing Co. . . . . New London, Conn.
Majestic Radio & Television Corporation . . . . 50 and Rockwell, St. Charles, Ill.
John Meck Industries, Inc. . . . . Plymouth, Ind.

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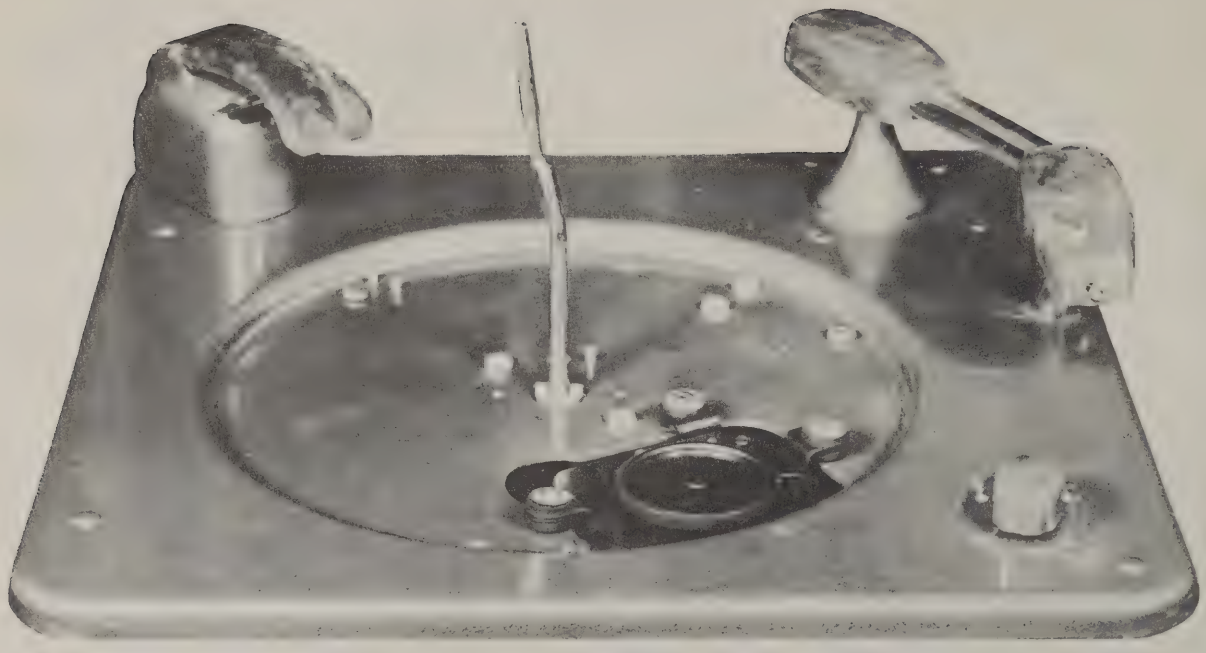
V-M
MODEL 800

V-M
MODEL 800



TOP VIEW LESS TURNTABLE

THE CHANGE CYCLE

The change cycle may be started by one of two actions:

1. Turning the control knob to reject causes the control cam (50) to actuate the control link (67) and allow the trip link (56) to be pulled away from the follower (63). The follower then tilts and engages the worm (35).

2. As the pickup arm moves into the eccentric groove of the record, the movement of the pickup (8) causes the pickup crank (37) to pivot the trip crank (49). The adjusting screw (51) of the trip crank will then push against the trip plate (54) allowing the trip link to release the follower. The follower (63), which transmits power for the change cycle, then engages the worm (35) and moves downward. The trip crank and lift rod assembly (49) is now pushed upward through the action of the follower arm (61). The long arm of the trip crank rides up the inclined portion of the index (41) raising the pickup and swinging it out clear of the records. As the follower (63) continues to move downward, the follower arm (61) is pivoted against the adjusting screw of the ejector arm (64), actuating the trigger assembly (25), which, in turn, moves the ejector slide (7) and drops a record to the turntable.

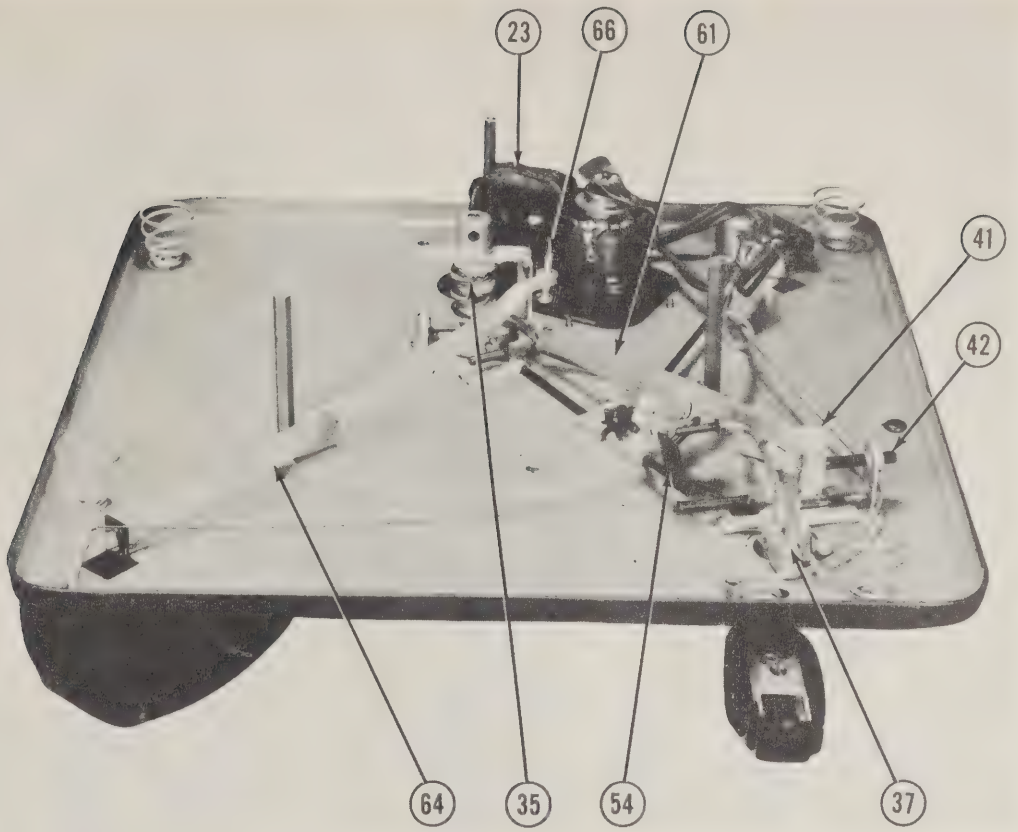
At this point the follower (63), guided by the follower guide (34A), moves up the worm. As the follower arm (61) moves away from the adjusting screw of the ejector arm (64), the ejector slide (7) returns to its rest position. Also, through the action of the follower arm (61), the trip crank and lift rod assembly (49) rides off the inclined portion and down the face of the index (41), positioning the pickup and lowering it to the record. The follower now moves off the worm and is latched by the trip link (56).

ADJUSTMENTS

SET-DOWN POINT

To adjust the set-down point, cycle the changer and stop the turntable just before the needle comes down on the record. Loosen the lock nut (43) and adjust the index screw (42). Turning the screw clockwise will move the pickup toward the center; counter-clockwise the pickup will move away from the record. Adjust the pickup so the needle rests 1/8" in from the edge of the record.

The set-down adjustment may be made with either 10-inch or 12-inch records and should be correct for



REAR VIEW

both. If the set-down has been disturbed by holding the pickup arm during cycle, or if the pickup crank is loose, the following approximate adjustment should be made before adjusting the index screw. Loosen the set screw in the pickup crank and turn the crank until it is stopped by the screw in the base plate. With the crank in this position, move the pickup arm to about ¼″ from the spindle and tighten the set screw.

POSITIVE TRIP

The positive trip screw (51) should be adjusted to trip the changer when the needle reaches a point 1 7/8″ from the center of the record. Loosen the lock nut (52) so as to have free action of the screw. By turning the screw clockwise, the trip point will be moved away from the center; counterclockwise the trip point will move in toward the center. After adjusting the screw, the lock nut should be tightened to maintain the adjustment.

PICKUP ARM HEIGHT

The pickup arm height adjustment is made by turning the screw (49A) in the lift rod assembly (49). To get to this adjustment, raise the pickup to a vertical position. Adjust so the pickup arm clears the unplayed stack by about ⅛″ at its highest point during the change cycle.

TIMING OF RECORD DROP

The timing of the record drop is adjusted by the screw (66) on the end of the ejector arm (64). The adjustment should be such as to just release the bottom record of a stack of ten 12-inch records in cycle.

EJECTOR SLIDE ADJUSTMENT

The ejector slide is adjusted by the screw (32). The adjustment should be such that the tabs are normally about 1/32″ from the edge of a record.

LUBRICATION

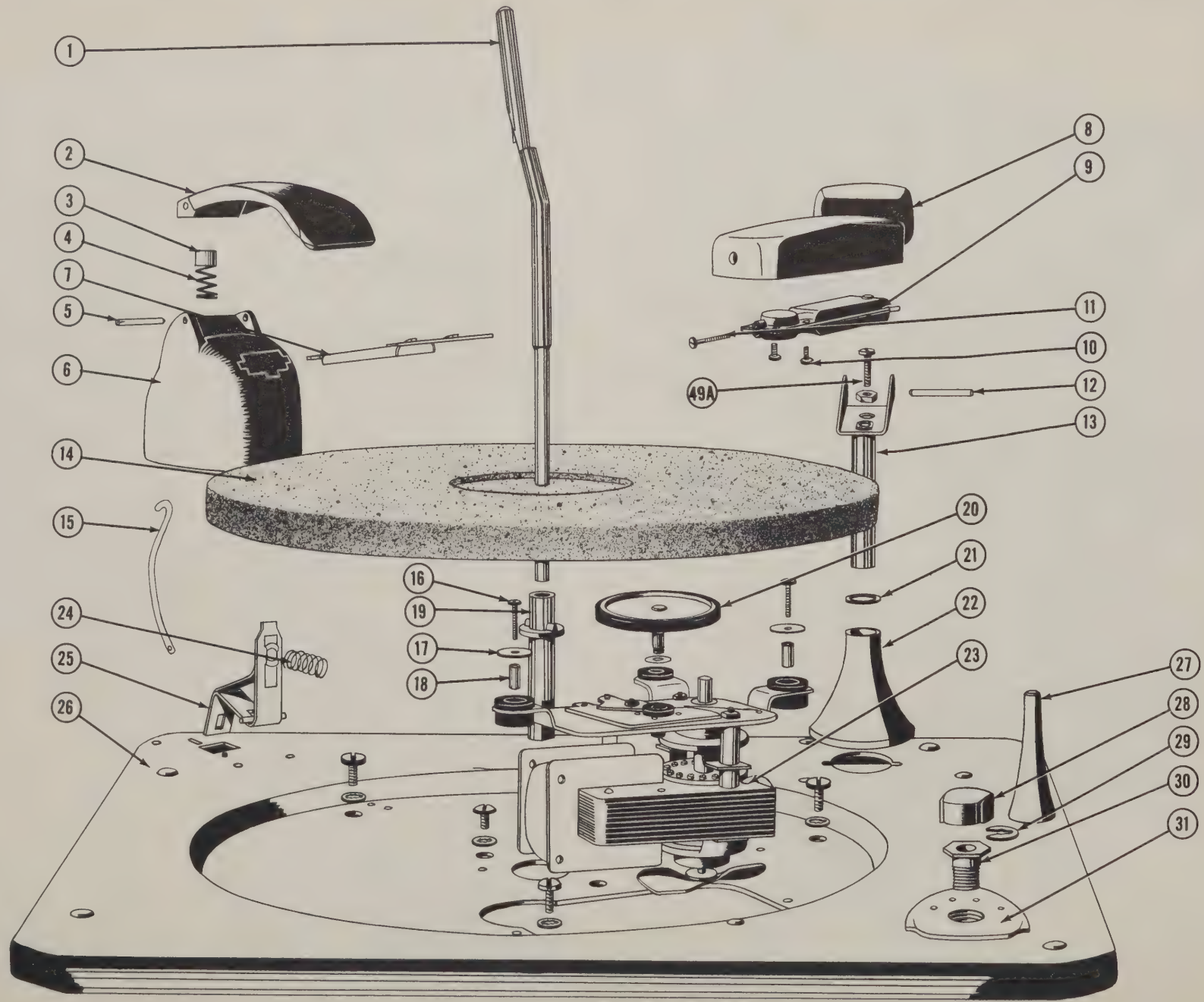
Additional lubrication should not be required for the life of the changer, but in cases of unusual use or high operating temperature, the changer should be lubricated as follows:

Apply Lubriplate to:

1. Worm threads (35).
2. Lift shaft (49).
3. Contact point between pickup crank (37) and trip crank (49).
4. Follower arm (61).
   a. At pivot of fulcrum (55).
   b. At contact point of trip crank (49).
   c. At contact point of sub-frame (34).
5. Ejector Arm (64).
   a. At contact point with trigger (25).
   b. At contact point of follower arm (61) and screw head (66).
6. Index (41) on surfaces of slide for trip crank arm (49).
7. Follower guide (34A) where follower (63) bears.

Apply a Small Quantity of Light Oil to:

1. Between turntable shaft (19) and storage shaft (1).
2. Follower (63) at pivot with follower arm (61).
3. Ejector arm (64) at pivot with ejector fulcrum.
4. Index (41) at bearing with slide bracket (39).
5. Trip link (56).
   a. At bearing in fulcrum (55).
   b. At bearing in trip bracket (57).
6. Trip plate (54) at bearing in fulcrum (55).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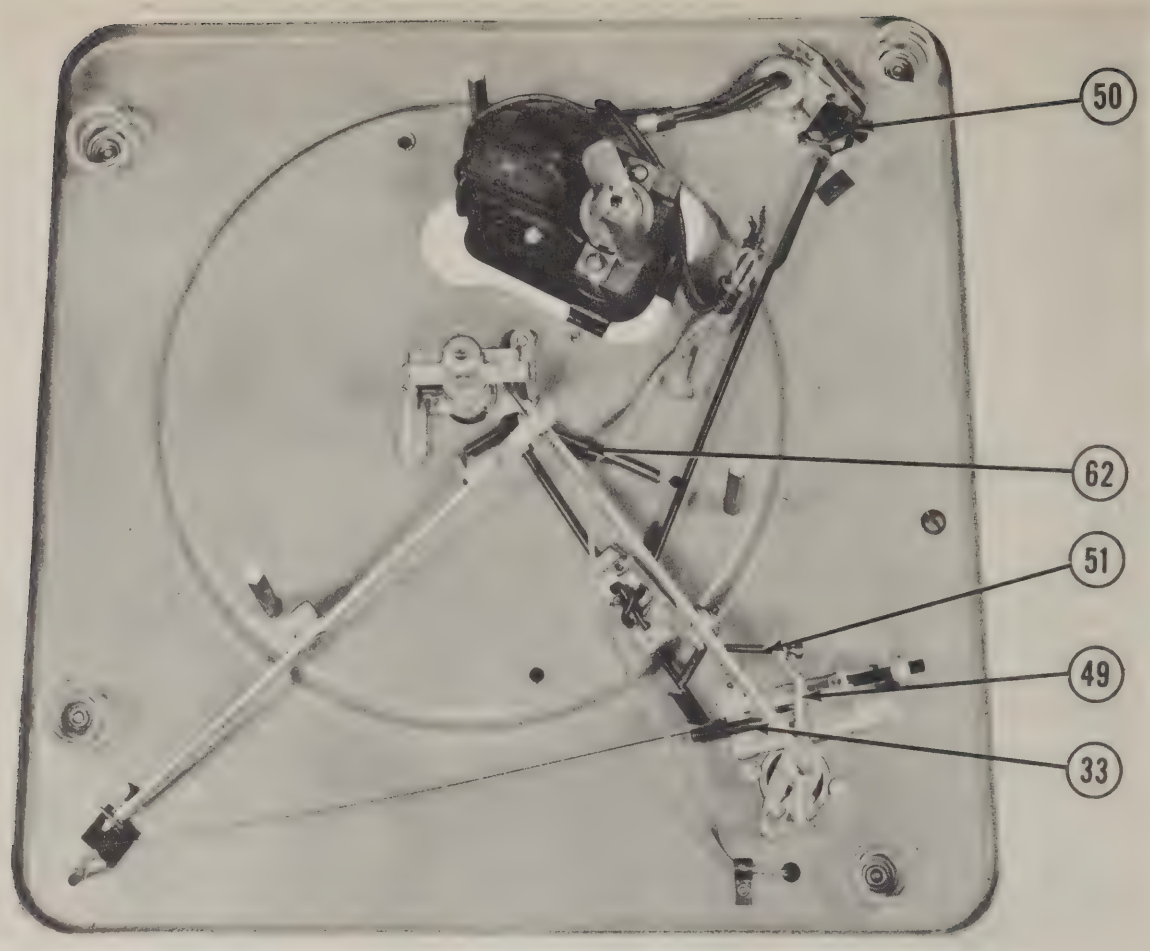
V-M
MODEL 800



BOTTOM VIEW

SERVICE INFORMATION

Turntable Does Not Revolve When Control Knob Is Turned to "On" Position:

1. Machine stalled in cycle:
   Turn the turntable carefully by hand until it starts rotating under its own power.
2. No current at motor.
3. Motor defective:
   Remove the turntable to allow the motor to operate without load. If current is reaching the motor and the pulley does not rotate, the motor is defective.
4. Motor idler wheel not engaging turntable rim:
   a. Check the motor idler assembly to see that it slides freely.
   b. Wipe off the inside rim of the turntable to remove flock, or, if oily, clean the turntable rim and the rubber tire of the idler wheel with carbon tetrachloride.
5. Turntable bearing tight:
   Hold idler wheel away from turntable or remove idler wheel and rotate turntable by hand to see that it is free. If binding occurs, remove the turntable and lubricate the oilite turntable shaft bearing with light oil.

Changer Does Not Cycle When Control Knob Is Turned to "REJ" Position:

1. Changer stalled or motor not driving turntable:
2. Manual reject not actuating trip:
   Turn the control knob to "REJ" position, hold and see if the hook on the end of the trip link (56) is pulled back sufficiently to allow the worm follower (63) to drop and engage in the worm threads (35).
   a. If the trip link does not release the follower, check the control link rod (67). If the rod is bent, carefully straighten it and check for trip again.
   b. If the trip link is not restricting the follower, but the follower still does not engage in the worm, the follower must be removed from the follower arm (61) and dirt or other foreign matter cleaned from the pivot point and from between the line of contact between the two parts. Excessive grease may cause this binding.
   To Remove the Follower:
      1. Be sure the changer is not in cycle.
      2. Remove the turntable.
      3. Remove the two screws from base plate and sub-frame (34).
      4. Carefully work the sub-frame assembly out of the base plate and revolve the assembly counter-clockwise to work off of the follower and follower arm.
      5. Remove the follower.
   c. If the follower drops but does not engage in the worm:
      1. Check for excessive wear in the pivot of the follower and follower arm.
      2. Check to see if the spring (62) has become unhooked.
      3. Check for dirt in the follower—follower arm pivot.
3. Turntable not engaging turntable lock.
4. Turntable lock loose on turntable shaft.

Record Does Not Drop When Changer Cycles:

1. Check for bent spindle (1).
2. Check for under or over size record or enlarged center hole.
3. Check position of ejector slide (7) as given under "Adjustments."
4. Check the screw in the ejector arm (64) to see if it hits follower arm (61) when the follower is at the bottom of the worm. If the lock nut on this screw has worked loose, reset the screw as given under "Adjustments."
5. Check to see if the ejector slide (7) is properly seated with its pushing mechanism on the trigger (25).
6. Check for a defective trigger by slowly pulling the ejector arm (64) down by hand. If a record does not drop, the trigger (25) must be repaired or replaced.
   To remove the trigger:
   a. Unhook the index spring (33) from the ejector link (15).
   b. Remove the four screws from the base plate and the housing assembly.

c. Lift the trigger from the housing and check for broken weld on strengthening brace.

Two Records Drop at Once:

1. Hole in record too large or records too thin.
2. Slide in spindle not fully down.
   a. Check slide to be sure it is free and does not bind at any point. Clean out foreign matter or straighten if necessary. Do not oil.
   b. When records are placed on the spindle, be sure the slide is all the way down.
3. Check for position of ejector slide (7).

Record Hits Pickup Arm:

1. Check timing of changer cycle as given under "Adjustments."
2. Check for a creeping index (41). Index "creeps" if it moves when the changer goes through cycle. To correct this condition:
   a. Be sure that the pickup (10) and pickup crank (44) are aligned as given under "Adjustments."
   b. Place the ejector slide (7) in 12″ position, cycle the changer until the follower is at the bottom of the worm. The index spring (33) should be just barely slack. The ejector link (15) may be bent forward or back to give the index spring this required slack.
3. Check for too much gap between the follower arm (61) and the trip crank. This gap should be about the thickness of a sheet of paper (.005″ to .016″). To reduce the gap, do one of the following:
   a. Bend the follower arm up.
   b. Replace the follower arm.

Needle Does Not Set on Both 10″ and 12″ Records:

1. Check the needle set down for 10″ position by holding the index (41) in with the fingers as far as it will go and cycling the changer.
2. Check the needle set down for 12″ position by holding the index out with the fingers as far as it will go and cycling the changer.
3. If these positions are correct when the index is held in either position, check for "creeping index."
4. Check for bind between guide tabs on the index and the index screw (42).
5. Check for bind between the index and the index slide bracket (39).

Needle Does Not Track Across Record Properly:

1. Check for gap between follower arm and trip crank. This gap should be about the thickness of a sheet of paper (.005″ to .016″). To increase the gap do one of the following:
   a. Bend the follower arm down.
   b. Place an appropriate thickness washer over the lift shaft (49) and under the lift nut (part of 49A).
2. Check for lack of vertical play of the pickup shaft in the pickup post (22). There should be .003″ to .010″ play here. To correct, loosen the screw in the pickup crank (37), place a shim between the pickup hinge washer and the pickup post and reset the pickup and pickup crank.
3. Check for lack of lubrication between the pickup shaft and the pickup post.

Center Trip Defective:

1. Check to be sure the control knob is in "AUT" position.
2. If changer trips too soon or too late, readjust screw (51) as given under "Adjustments."
3. If the changer does not trip, push the trip plate (54) back by hand and see if the hook on the trip link (56) is pulled back sufficiently to release the worm follower. If the trip link hook does not release the follower check for the following:
   a. Weak or damaged spring (58).
   b. Bind between trip bracket (57) and trip link.
   c. Binding due to burrs between the fulcrum (55) and the trip link.
   d. If none of the above show trouble, bend the tail of the trip link (56) in toward the side of the fulcrum. This will allow the hook on the other end of the trip link to pull back farther.
4. If the changer continues to trip, check for the following:
   a. Spring (53) weak or unhooked.
   b. Binding between the trip plate rod and the fulcrum.
   c. Too much clearance between the hook on the trip link, and the follower. Correct by bending the tail on the trip link away from the side of the fulcrum. This will cause the hook end of the trip link to engage the follower more closely.
5. If the needle jumps out of the eccentric groove on record:
   a. Check trip pressure. This should not exceed 12 grams. If trip pressure is too high, check:
      1. For binding.
      2. Spring (53) too strong. May be weakened by carefully stretching one of the center loops.
   b. Record may be defective. The trip grooves are often too shallow. Check with a record known to be good.
   c. Needle point may be worn.

Turntable Speed Too Slow:

1. Binding in turntable bearing.
2. Motor pulley too small in diameter. Replace with motor pulley of correct diameter.
3. Line voltage too low. Voltage in a 115 volt changer should not be less than 100 volts.
4. Operating temperature too low. Surrounding temperature should be not less than 60° F.

Turntable Speed Too Fast:

Motor pulley too large in diameter. Replace with motor pulley of correct diameter.

Turntable Stalls in Cycle:

1. Motor idler not engaging turntable with sufficient tension.
2. Turntable bearing tight.
3. Operating temperature too low.
4. Line voltage too low.
5. Binding between follower and worm.
   a. Check lubrication of follower arm at point of bearing with sub-frame.
   b. Check lubrication of worm threads.
   c. File some metal from the follower arm at the point of bearing with the sub-frame to allow more clearance between the worm and the follower.
      1. Remove follower as described in second paragraph.
      2. Remove spring (62).
      3. Remove cotter pin (60).
      4. Remove follower arm.
6. Trip crank (49) jams on index (41):
   a. Check for lubrication on index at point of bearing with trip crank.
   b. Check for burrs on the inclined surface of the index. Surface must be very smooth. Polish with crocus cloth.
   c. Check for grooves worn into trip crank arm at contact point with index. File smooth with fine file, if necessary.

Noise During Playing of Record:

1. Rumble:
   a. From Motor: If a low pitched rumbling sound comes from the loud speaker while a record is being played, check the motor grommets to be sure the motor is freely suspended on them. The motor lead wires should have slack to allow the motor to float. Motor rumble may also come from an out of balance motor rotor. In this case, the motor should be replaced.
   b. From Bearings: Defective turntable shaft bearings can cause rumble. Check for foreign matter. Lubricate with lubriplate or light oil.
2. Defective Motor Idler Wheel:
   A rapid thumping sound while the motor is running may indicate a flat spot on the motor idler wheel. Remove the turntable and check the rubber tire on the idler. If the surface of the rubber tire is not smooth and even, replace the idler.
3. Defective Needle:
   A bad needle will cause loud needle scratch or hiss through both the speaker and the air directly from the needle.
4. Turntable scrapes:
   If a scraping sound occurs as the turntable revolves, check:
   a. Turntable warped, causing outer rim to rise and fall.
   b. Motor idler bent.
5. Squeaks:
   Squeaking sound as changer operates, indicates lack of lubricant. Lubricate points indicated under "Lubrication."

Noise During Cycling:

1. There is normally an audible snap when the follower engages with the hook end of the trip link at the end of the cycle.
2. Squeaks: See "Lubrication."
3. Grinding sound indicates lack of lubrication or worn parts.

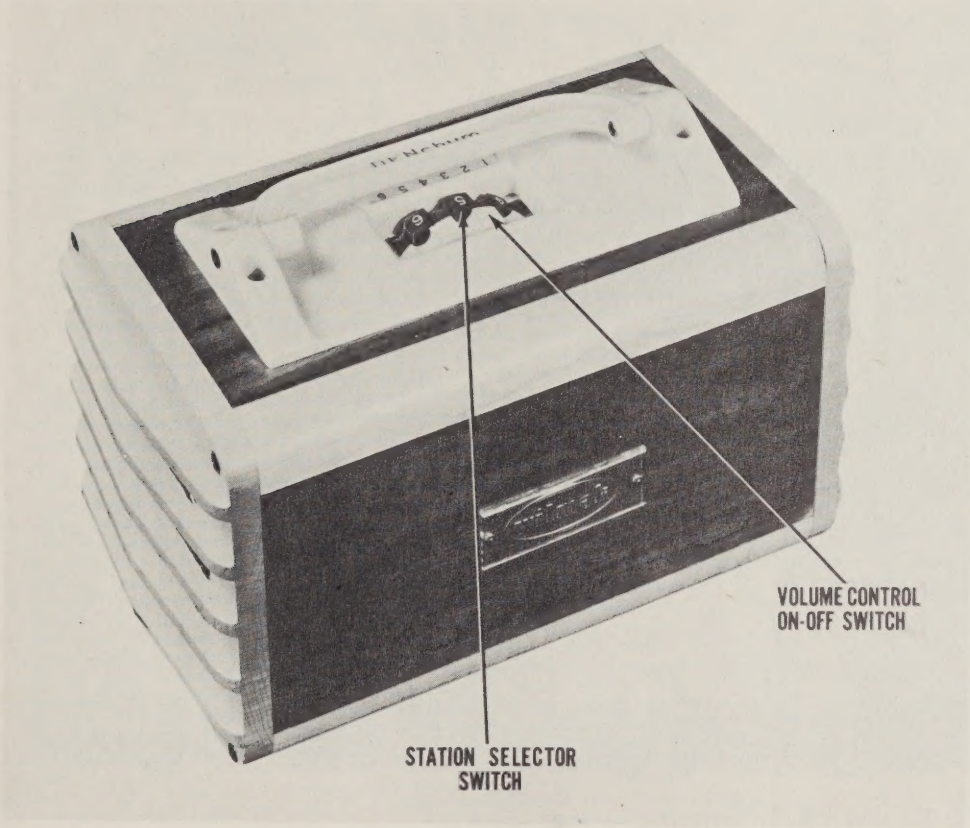
Excessive Record Wear:

1. Binding in pickup arm.
2. Defective needle.
3. Excessive needle pressure:
   The pickup arm is designed to give the proper needle pressure when an aluminum cased cartridge is used. If a cartridge with a die-cast housing is used, a compensating spring must be used to bring the needle pressure down to the usual standard of 1-1½ oz. If the needle pressure is too great on a pickup arm using a compensating spring, bend the long end of the spring.

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	1754	Spindle Assembly
2	1746	Record Clamp
3	1757	Hold Down Cup
4	428	Spring
5	941-A	Hinge Pin
6	1793	Housing
7	1802	Ejector Slide
8	1747	Pickup
9	649-D	Cartridge (Astatic L-70 or equivalent)
10	713	Screw
11	1572 1744	Needle Screw Pickup Assembly (includes 8, 9, 10 and 11)
12	941-B	Hinge Pin
13	746	Pickup Hinge Assembly
14	518	Turntable
15	695	Ejector Link
16	1717	Screw No. 6 x 5/8" Type "Z"
17	970	Washer
18	516	Motor Spacer
19	1804 1805	Turntable Shaft Turntable Shaft Assembly
20	904	Idler Wheel
21	48	Washer
22	681	Pickup Post
23	961-B	Motor
24	423	Spring
25	777	Trigger Assembly
26	1741 1750	Base Plate Only Base Plate Assembly
27	981	Pickup Rest
28	1711	Control Knob
29	1719	"C" Washer
30	1789	Control Shaft Bearing
31	963-3	Escutcheon
32	1668	Record Shelf Adjusting Screw
33	884	Index Spring
34	1830	Subframe Assembly (Complete, Including 19, 34A, 35, and others)
34A	875	Follower Guide
35	680 707 724	Worm Setscrew Ball Bearing
36	709-B	Screw No. 6 x 5/16" Type "Z"
37	1743	Pickup Crank
38	711-B	Screw No. 10-32 x 5/8"
39	1786	Slide Bracket
40	1663	Slide Return Spring
41	1785	Index
42	1787	Index Screw
43	712 1806	Nut No. 10-32 Index Slide Assembly (Includes 39, 40, 41, 42, and 43)
44	1769	Switch Bracket
45	1788	Cam Spring
46	1660	Control Bearing Nut
47	467 1737 1748	Switch Switch Cover Switch Bracket Assembly (Includes 44, 45, and 47)
48	686	Crank Spring
49	1755 833 1796	Trip Crank and Lift Rod Assembly Lift Shaft Trip Crank
49A	1616-A 1617	Screw and Nut Assembly—Height Adjustment
50	1800	Control Cam Assembly
51	873-A	Screw No. 6-32 x 1"
52	1732	Nut No. 6-32 x 1/4" Hex
53	1909	Spring—Trip Plate
54	1772	Trip Plate Assembly
55	926	Fulcrum
56	1794	Trip Link
57	1765	Trip Bracket
58	1790	Spring—Trip
59	709-B	Screw No. 6 x 5/16" Type "Z"
60	996-B	Cotter Pin
61	1791	Follower Arm Assembly
62	1876	Follower Spring
63	1795	Follower
64	669 1821	Ejector Arm Ejector Arm and Fulcrum Assembly
65	709-B	Screw No. 6 x 5/16" Type "Z"
66	1807	No. 6-32 3/4" Phillips Binder Head
67	1784	Control Link
68	62	Spring—Control Rod

WILMAK, MODEL W-446
"DENchum"



WILMAK, MODEL W-446
"DENchum"

WILMAK MODEL W-446 "DENchum"

TRADE NAME	Wilmak, Model W-446 "DENchum"
MANUFACTURER	Wilmak Corp., R.R. 3, M139, Benton Harbor, Mich.
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .170 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available, if not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200 MMF.	High side to ext. ant. Low side to chassis.	455KC		Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.

PUSHBUTTON ADJUSTMENTS

1. Turn on receiver and allow to warm up for a few minutes.
2. Make a list of desired stations arranged from high to low frequencies.
3. Set station selector to position 1.
4. Adjust B1 to tune in first station on list.
5. Adjust B2 for maximum volume.
6. Follow same procedure for remaining stations adjusting B3, B5, B7, B9 and B11 to tune in stations and B4, B6, B8, B10 and B12 for maximum volume. Make sure station selector is at correct setting before making each adjustment.
7. Repeat all adjustments for optimum performance.

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PARTS LIST AND DESCRIPTIONS

WILMAK MODEL
W-446 "DENchum"

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WILMAK PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3Q4	3Q4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WILMAK PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
5A	40	150	15A0816						● Filter
B	20	150							■ "
C	20	150							▲ "
D	80	25							Filament Bypass
6	.05	400	15A0058	DT4S5	TP426	S-4-05	TC-15	484-05	Line Filter
7	.005	150	15A0831	ZY2D6	MT115	TTF1-005			Audio Coupling
8	.005	150	15A0831	ZY2D6	MT115	TTF1-005			" "
9	.02	150	15A0832	ZY1S2	MT127	TTF1-02			IF Grid Filter
10	.02	150	15A0832	ZY1S2	MT127	TTF1-02			Tuning Ass. Isolation*
11	.02	150	15A0832	ZY1S2	MT127	TTF1-02			Tuning Ass. Isolation
12A	.02	100	15A0798						Bypass block
B	.02	100							" "
C	.05	100							" "
D	.02	100							" "
E	.02	100							" "
F	.02	100							" "
13	100	500	15A0830	5W5T1	MC235	MO.5-35	1FM-35	1468-0005	Diode Filter
14	25	500	15A0833	5W5Q25	MC220	MO.5-425	MS-425	1468-000025	Osc. Grid Capacitor
15	20								Fixed Trimmer *
16	25	500	15A0833	5W5Q25	MC220	MO.5-425	MS-425	1468-000025	Ext. Ant. Coupling †

*Not used in all models.
†Used with loop antenna.

CONTROLS

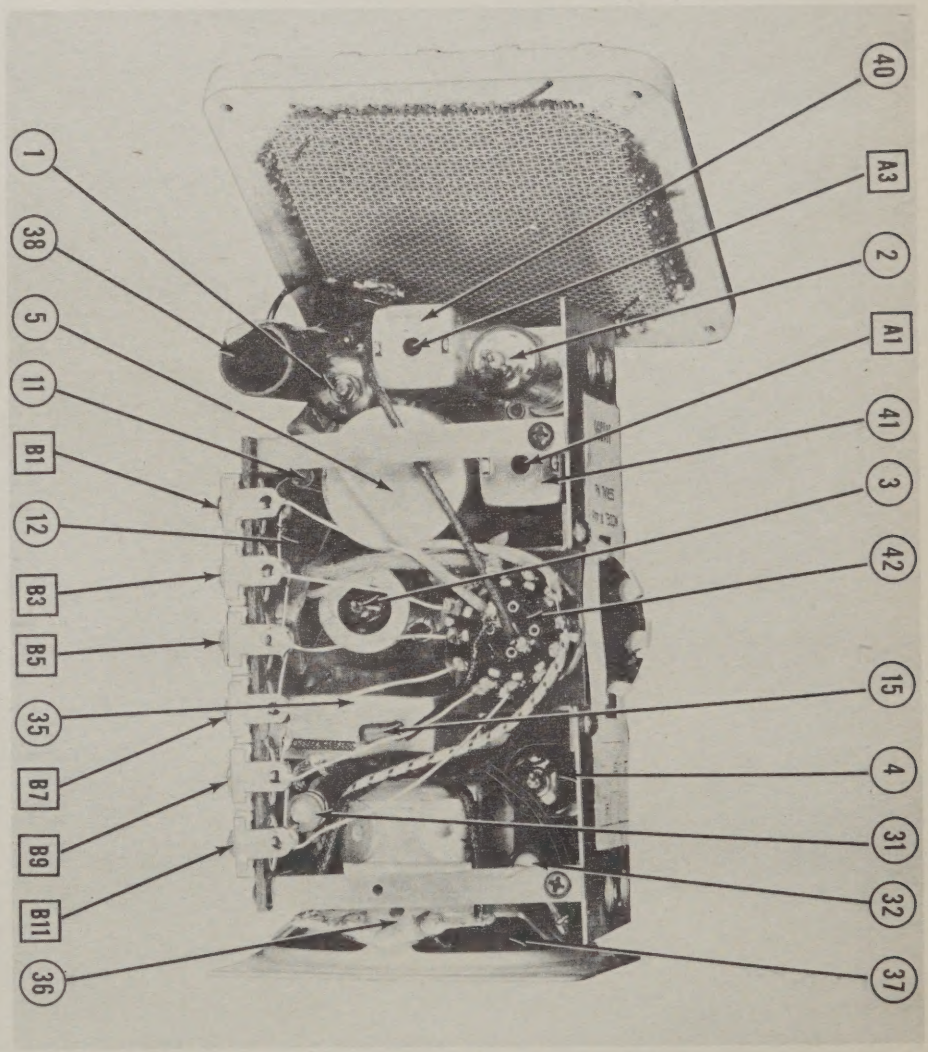
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	WILMAK PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17	500KΩ	1	11C0727				Volume Control & Sw.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WILMAK PART No.	IRC PART No.	
18	3.3 Meg.	½	11A0829	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	390Ω	½	11A0827	BW-½-390	Or.-White-Br. Filament String
20	100KΩ	½	11A0144	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
21	10KΩ	½		BTS-10K	Br.-Blk.-Or. Converter Screen Dropping-See Note 1
22	3.3 Meg.	½	11A0829	BTS-3.3 Meg.	Or.-Or.-Grn. IF Grid
23	22KΩ	½	11A0647	BTS-22K	Red-Red-Or. IF Screen Dropping
24	47KΩ	½	11A0559	BTS-47K	Yl.-Vi.-Or. Series Volume Control
25	10 Meg.	½	11A0391	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	3.3 Meg.	½	11A0829	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
27	1 Meg.	½	11A0392	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load-See Note 2
28	1 Meg.	½	11A0392	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid-See Note 2
29	390Ω	½	11A0827	BW-½-390	Or.-White-Br. Filament String
30	270Ω	½	11A0846	BW-½-270	Red-Vi.-Br. Filament String
31	1200Ω	10	11A0818	AB-1250	" "
32	1200Ω	10	11A0818	AB-1250	" "
33	3300Ω	1	11A0667	BTA-3300	Or.-Or.-Red Filter
34	47Ω	1	11A0697	BW-1-47	Yl.-Vi.-Blk. Surge Limiter

Note 1-Some models use 22KΩ in this application. Replacement same as Item #23.
Note 2-Some models use 2 - 560KΩ in series. Replacement same as Item #27.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WILMAK PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
35	7500Ω	3.2Ω	385Ω	.5Ω	13A0814				

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WILMAK PART No.	JENSEN PART No.		
	FIELD	VC IMP.				
36	PM	3.2Ω	14B0822			
	CONE DIA.	VC DIA.				
37	3-3/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

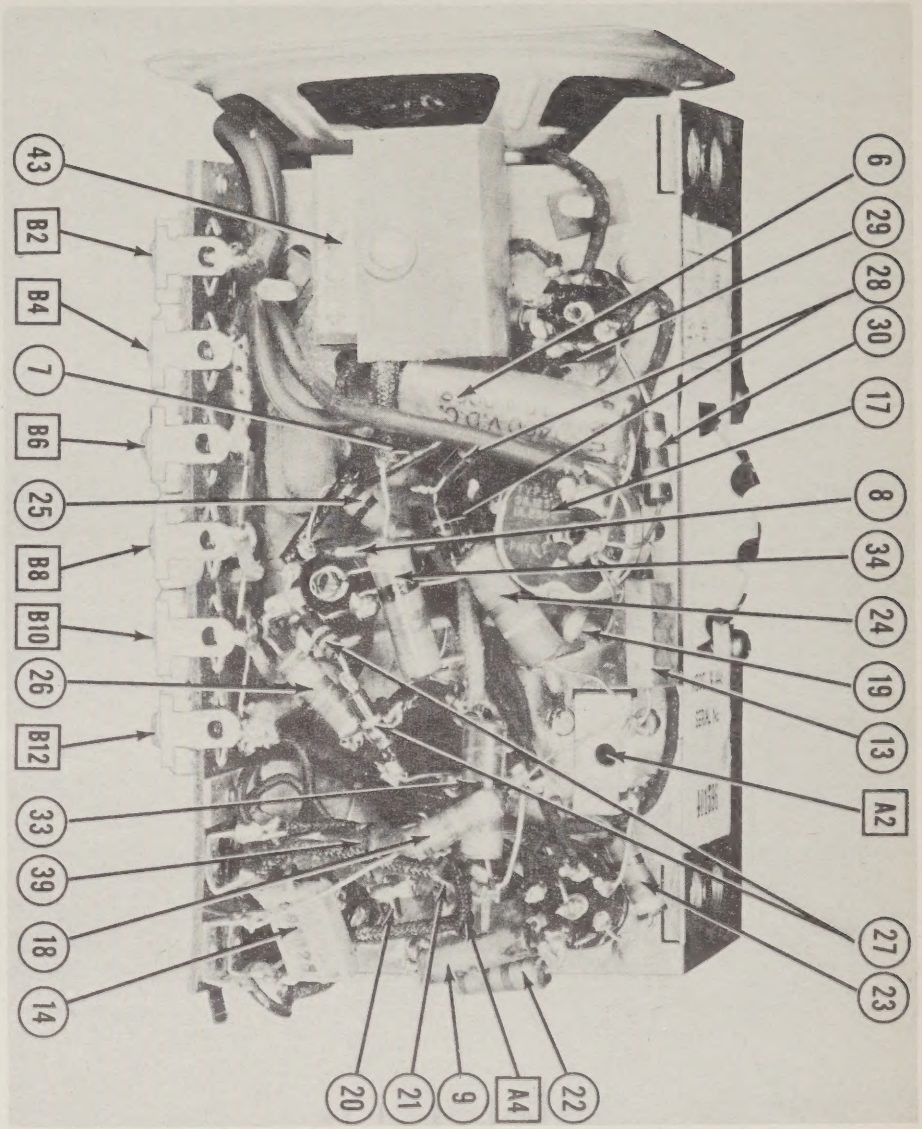
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	WILMAK PART No.	MEISSNER PART No.	
38A	Loop Ant.			51A0826		
B	Ant. Coil		3.5Ω			
39	Osc. Coil		5Ω	90A0825		
40	Input IF	21Ω	21Ω	88A0799		
41	Output IF	16Ω	16Ω	88A0800		

MISCELLANEOUS

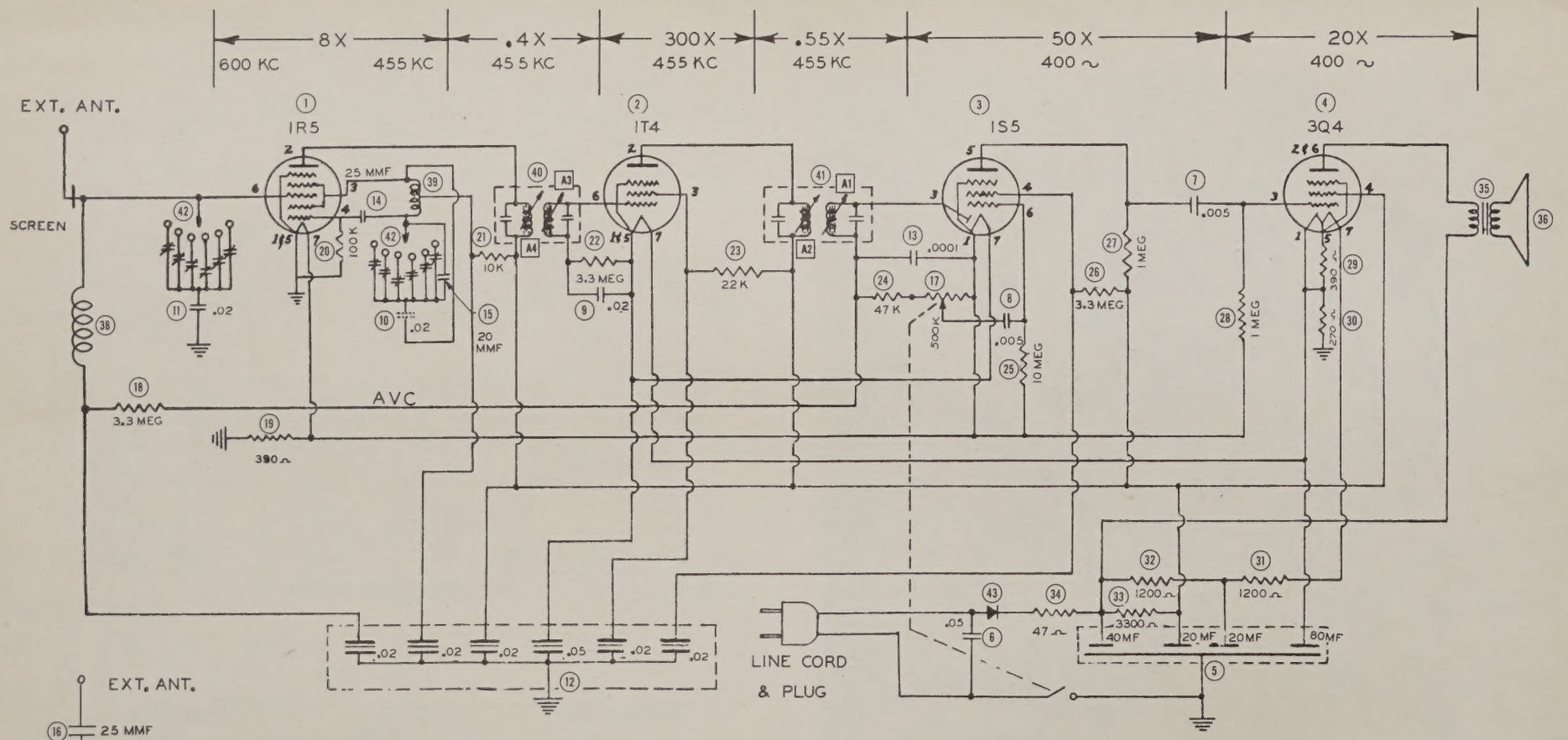
ITEM No.	PART NAME	WILMAK PART No.	NOTES
42	Switch	30A0734	Station Selector
43	Rectifier	92A0823	Dry Disc.
B1,B3 B5,B7 B9,B11	Trimmer Assembly	75A0772	Oscillator Adjustment
B2,B4 B6,B8 B10,B12	Trimmer Assembly	75A0773	Antenna Adjustments

CHASSIS—BOTTOM VIEW



WILMAK MODEL
W-446 "DENOHUM"

WILMAK MODEL
W-446 "DENOHUM"



ALTERNATE CIRCUIT

IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	IR5	0V.	95 V.DC	70V.DC	0V.	0V.	.1 V.DC	1.4 V.DC
2	IT4	2.9V.DC	95 V.DC	67V.DC	0V.	2.9V.DC	.1 V.DC	4.2V.DC
3	IS5	1.4 V.DC	0V.	.4 V.DC	1 8V.DC	12 V.DC	0V.	2.9V.DC
4	3Q4	4.2V.DC	127V.DC	.2 V.DC	95 V.DC	5.7V.DC	127V.DC	7.1V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	IR5	0Ω	5KΩ	27KΩ	100KΩ	0Ω	3.3MEG	*
2	IT4	*	5KΩ	27KΩ	INF.	*	3.3MEG	*
3	IS5	*	INF.	490KΩ	3.3MEG	1MEG	10MEG	*
4	3Q4	*	2.3KΩ	1 MEG	5KΩ	*	2.3KΩ	*

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4711-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.